The New England
Journal of Medicine

Copyright, 1950, by the Massachusetts Medical Society

Volume 242 MARCH 23, 1950 Number 12

MEDICINAE DOCTOR, 1950*

PAUL DUFAULT, M.D.†

RUTLAND, MASSACHUSETTS

IN THIS year 1950, Medicinae Doctor stands alone, a puzzled, self-conscious person. Disturbed by events abroad affecting the status of his brethren, uneasy about some tendencies at home, and at the same time fascinated by the rapid advances made in his own field of endeavor, he turns a searching eye on his profession and a critical one on himself.

THE PHYSICIAN LOOKS AT HIMSELF

Judging by literature, the theater and some of the arts, he knows that, for centuries, doctors did not stand very high in public esteem — Montaigne, and later on, Molière, to mention only two famous literary figures, have written particularly biting satires at their expense. Physicians fared no better at the hands of the painters, as may be seen in an engraving by Hogarth about 1750, showing two bewigged doctors arguing while their patient dies. A commentator added:

> About the symptoms they disagree
> But how unanimous about the fee!

Were they really so bad? One must admit that, very probably, they were. Remembering that medicine emerged from mysticism and that treatment was for centuries a matter of magic and incantations, one should not be surprised that some keen observers, failing to obtain relief from medical ministrations, took revenge in demolishing the false front behind which doctors concealed their ineptitude.

After the turn of the nineteenth century, criticism persisted, but ridicule diminished noticeably. Clinical medicine founded on observation and experimentation inspired more respect, and sounder therapeutics obtained more tangible results. Physicians, finding themselves on firmer ground, substituted sensible methods for ceremonials and effective remedies for folderol.

They exercised considerable prestige through the nineteenth century, and when Pasteur opened before them the broad avenues of microbiology, and Lister the vast fields of antisepsis and asepsis, they entered into a glorious world. The era of vaccination, of immunization and of spectacular surgery had begun.

Recently, the doctors decided to present their own case in the very field of literature in which they had been so mistreated. The reading public was invited into their private offices, taken through their laboratories and even introduced into their operating rooms. Such titles as *The Horse and Buggy Doctor*, *Consultation Room* and *Memoirs of a Surgeon* were conspicuous on the bookstalls. The public was interested and not a little impressed.

About the same time, handsome Dr. Kildare appeared on the screen. The ordinary physician gasped. Did he have anything in common with that cool operator whose dexterity and speed could win a race with death by a mere stitch? As for the devastating technic of that irresistible lover, surely. . . . Well, why not? The physician had come a long way from his humble beginnings. Remembering what he had suffered at the hands of Molière, he did not try to suppress a feeling of warmth for Metro-Goldwyn-Mayer.

The culmination to this ascension came in the last few years when the world proclaimed that the physician was so indispensable to the welfare of the common man that he had to be listed among the national assets like natural resources, and to come under the general heading of Public Utility. The doctor had never thought he was that good. If he did not care to be laughed at, he did not want to be so popular either. Yet there he is today on a pinnacle, a little dizzy from the height, and very perplexed about how he can come down without having to jump into the net of officialdom.

Reflecting on the whims of fortune, the physician today is in the proper mood to take appraisal of the situation, without unbecoming vanity for his achievements or undue indulgence for his shortcomings. He realizes that his is a multiple personality and that the species Medicinae Doctor has, through a process of natural evolution, developed into many varieties presenting special charac-

*Annual oration presented before the Worcester District Medical Society, October 12, 1949.

†Superintendent, Rutland State Sanatorium.

teristics. These he considers in a light vein, in caricatures devoid of malice.

The *internist*, for example, is recognizable by his preoccupied look, as a man wrestling with difficulties. His gait is steady but careful, as if he were treading on treacherous ground. In fact he is always walking from one riddle into another. What is wheezing in that chest? What is growling in that abdomen? He looks, he listens, he percusses, he palpates, and he still does not know. Considering every organ as a potential villain, he suspects the liver, distrusts the pancreas, questions the stomach and has his doubts about the kidneys. To him the abdominal wall is a wailing wall, and the human body a walking box of Pandora containing all possible ills. The sibylline reports emanating from the x-ray room and the logarithmic formulas pouring out of the laboratory only add to his confusion. In his desperation he would like to ask his surgical colleague to look in, but he hates to let him loose in a defenseless abdomen, and besides, he is afraid that his able confrere would claim most of the credit and take all the available cash.

The *surgeon* cuts more of a figure. His walk is brisk, and his carriage buoyant. Obviously, his path is clear. He exudes optimism and radiates confidence. Being a thorough man, he leaves no stone unturned, so that the world has few secrets for him, and his patients none. He invariably goes to the bottom of the question, no matter how deep, and if he comes out bloody he holds the answer in his hand. The burden of accumulated uncertainty that weighs on the shoulders of the internist never bends the surgeon's erect structure.

The *pathologist* is a thoroughly perverse person who delights in reporting as normal appendixes that at the time of operation were full of promise, and in calling benign tumors sufficiently ugly looking to be malignant. In his post-mortem reports he systematically avoids any mention of the clinical or preoperative diagnosis, and if an irate clinician or an incensed surgeon breaks into his laboratory to demand an explanation, he wastes no words. Placing a slide, any slide, on the mechanical stage, he invites his visitors to look, knowing full well that neither one nor the other will, and that, if he did, he could not tell the difference. This mastery explains his suave manner and his calm assurance even in the midst of heated debates.

The *specialist* lives apart from the milling throng, in a slightly rarefied atmosphere, where only selected segments of human ills are allowed to penetrate. Of the others he claims no use and wants no knowledge. He accepts his universe the way he sees it through the narrow aperture of his choice, limited and somewhat distorted. To the oculist, it is a squint; to the nose and throat man, it is either a sniff or a gag; and to the dermatologist, it is nothing but an itch. But in case you feel sorry for the orthopedist to whom this world is a joint, just think of what it is to the proctologist!

Those who have reached middle age still remember the *general practitioners*, now almost extinct in some localities. Closely resembling modern internists, they were a grand old type, free lancing in abscesses and phlegmons, shuttling between mother and baby, turning a hand at small repairs, amputating a finger, sewing a cut, making little incursions into allergic territory, encouraging the depressed wife, upbraiding the exuberant husband, looking into a roguish eye, peering into a deaf ear, holding down a rebellious stomach or extinguishing a fiery rash as the occasion arose. They knew much about many things and did much for many people. May fate be kind to those who remain!

Like the llama of the Andes, the *psychiatrist* finds his pastures on high plateaus, where he roams at will in unlimited spaces. When he descends to the plains for an occasional taste of physical medicine and a casual look at his confreres, he finds the latter a little queer. In his presence, puzzled internists, positive pathologists, detached specialists and even enterprising surgeons experience the same feeling of self-consciousness. They dare not talk lest their words reveal some ugly part of their subconscious. They dare not move, in fear that an unguarded gesture will lift the veil concealing their suppressed desires. At the first opportunity they look for cover, leaving their awe-inspiring colleague free to return to his cloud-swept altitudes.

On the fringes of the medical city there lives another subvariety of doctors. These have wandered from the rest of the tribe and found their way into the various state or federal reservations where they have become domesticated. They are not held in too high esteem by their wild brothers, but as they are unobtrusive, innocuous and content with the least desirable quarters of the city, they are allowed to come and go unmolested. Their only characteristic is their tame appearance.

Basic Qualities

Whatever his category, the physician shares with all his colleagues the same basic qualities. He is primarily a hard-working person. Exacting, arduous and prolonged hours are his lot from the beginning, and the fast pace set during his training period seldom slows down appreciably for the first twenty-five years of practice. Hospital visits, house calls and office hours fill the days of his years with the excitement of diagnosis, with the thrills of treatment and with the satisfaction of seeing improvement and cure, as well as with the disappointment of failure.

He studies assiduously. Singly, or in groups, he spends hours reading, writing, attending conventions, meetings and postgraduate courses, hours during which he feels the nearest to scientists and

to other practitioners who, like himself, occupy the outposts where life is being disputed to death.

The doctor has established for himself a *code of ethics* that, considering human frailty, holds him to a high professional standard. The rules governing his conduct are too numerous to be considered separately, but a word might be said about one dominant principle that may well be considered as the foundation of the others — that is, his respect for life.

The sacredness of life, instilled into him during his student days, permeates his conscience, influences his thinking and dominates his actions throughout the duration of his career. His convictions on this subject, often in conflict with the dictates of opportunism, have succeeded in erecting legal protective measures at various points where life is threatened. His constant opposition to euthanasia, for instance, stands as an act of faith in a high principle. Revolting at the thought of destroying what it is sworn to preserve and foster, his professional conscience has resisted the orders of the mighty and ignored the prayers of distracted relatives rather than extinguish the remaining flickers of an apparently passing existence.

Practical considerations never enter into play where life is concerned. The doctor exercises the same solicitude for the condemned in the death cell as for the respected citizen in his suburban home. He accompanies the hopeless victim of cancer through his last days with the same attention that he brings to the man suffering from a simple pneumonia; he treats without hope as well as with it.

The entire chapter of geriatrics is an eloquent tribute of his profession to the intrinsic value of life. The unproductive lives of invalids, once fairly neglected, occupy an increasing share of medical attention.

The pathetic lives of the epileptic patient and of the mentally deranged are protected and defended at great cost. This unflinching devotion to life regardless of its physical embodiment and of its economic value is one of the distinctive attainments of the higher civilizations. The medical profession can claim a large share of the credit for the development of a philosophy that has brought mankind to its present stage of evolution on this point — a philosophy based on the belief that there is, in man, something nobler and more durable than his perishable body.

Going even farther in this direction, medicine has been instrumental in the enactment of laws for the protection of life in its embryonic stage by forbidding abortions except under extenuating circumstances of a medical nature. It has also made it a crime to castrate persons for reasons of expediency or social economy. The world, accustomed for generations to this teaching, witnessed with unmixed horror, in recent years, the appalling practices condoned by a philosophy according to which political and utilitarian factors were allowed to prevail over spiritual considerations.

The conscience of civilized men was also shocked by reports of experiments, potentially detrimental to life, carried out on defenseless political prisoners without their consent. The medical profession reacted promptly. As soon as the World Medical Association came into existence, the participant physicians repudiated the conduct of their guilty colleagues, and a special committee wrote a modern version of the Hippocratic Oath containing, among others, the following clauses:

> I will let no consideration of religion, of nationality, of race, of party, of social class interfere with my duty to my patient.
>
> I will have absolute respect of human life from the moment of its conception.
>
> Even under threat, I will not use my medical knowledge against the laws of humanity.

Medical conduct is so thoroughly permeated with respect for life that physicians are rarely guilty of homicide. They are not too particular about their own lives, however, since suicide accounts for 1.9 per cent of 17,000 deaths among them in the United States between the years 1938-1942.

The doctor is a *philanthropist* — not with his capital but with his labor. From his daily contact with illness, he acquires special psychologic traits that may be considered as characteristics. He has never forgotten the thoughts that haunted him after his first visit through the hospital wards. Particularly vivid in his memory is the sense of helplessness that overwhelmed him whenever, the bedside demonstration over and as the group was moving toward the next patient, the professor added in a hushed tone: "As you know, gentlemen, this condition is fatal." The student could not help casting another glance at the condemned, whose eyes often followed his retreating visitors with that knowing look so hard to bear. Whether he is conscious of it or not, every practitioner carries through his professional life the mark made upon his soul by his first encounter with fatal illness.

Is it not that first moral shock of the medical student that inspires the research worker to look for improved methods, the clinician to think of new concepts, the surgeon to try better technics, and the practitioner to keep his exacting schedule?

A pathetic appeal in the eyes of young mothers dying of puerperal fever stirred Ignaz Philipp Semmelweis to fight for cleanliness in obstetrics. A similar pleading inspired Lister, Walter Reed, Edward Livingston Trudeau and countless others. Associating the average physician with such outstanding men may seem presumptuous, but actually it is not. Medical discoveries can benefit mankind only in the measure of their practical application. And how can such application be brought to the patient without the practitioner qualified to recog-

nize the condition in cause and to administer the proper treatment? Every conscientious member of the profession, on the sole basis of his hard work, may claim his share of credit for the blessings medicine has brought to mankind.

Is not the physician a practical philanthropist when he sacrifices his night's rest and much of his freedom to answer calls and to ensure continuous and dependable service to his patients? Is he not a philanthropist when he gives from four to six hours of his time every week to charity? Is he not a philanthropist when he exposes his own health in treating contagious diseases? Is he not a philanthropist when he joins the armed forces voluntarily in time of war?

A philanthropist he is also in broader spheres. Medical philosophy has, through the course of centuries, followed the high road of humanitarianism, in striking contrast to political ideology, and at times to religious aberrations. While territorial ambitions, state rivalries, racial prejudices and superstitions brought death to innumerable human beings through wars and persecutions, medicine continued its fight against disease on all fronts. Medical vision carries over frontiers and beyond creeds. In war, while the soldier kills, the doctor mends friend and foe. Strikingly symbolic of this aspect of medicine is the engraving representing Ambroise Paré on the battlefield, bent over a wounded soldier and tying his severed arteries. Had he been a general, he would have ridden on horseback and given command. Today his statue might adorn the public square. The doctor's road seldom leads there, but his feet tread on no one.

Perhaps no branch of endeavor has done as much as medicine to bring about universal brotherhood. Through the accidents of birth, of fortune, of color and of creed, the physician sees clearly the absolute fundamental equality of men in sickness, in agony and in death. Never in the performance of his duty has he found anyone's blood nobler than that of another, or anyone's flesh of a finer texture than that of another. And to whoever might claim that his soul is of a higher order and his own God is a greater God than that of his neighbor, the doctor could say with the Ecclesiast: "This also is vanity and a great evil."

Whereas national allegiances are restricted by boundaries and religious thinking is confined by denominations, medical thought is universal in scope and application. Chemists and engineers often work in secrecy lest their discoveries be used as weapons by unfriendly nations. Medical workers place their findings at the disposal of the world without even a thought of remuneration. Ether is not American; radium is not French; insulin is not Canadian; penicillin is not British. At this very moment, when governments are developing atomic energy for possible destruction, medical scientists are studying ways of using it for therapeutic purposes.

The physician is justly proud of the benefits that his profession has given the world. Should he review briefly the results so far obtained, he could delete from the long nomenclature of disease such words as typhus, typhoid fever, bubonic plague, rabies and smallpox. He could star pneumococcal pneumonia, gonorrhea, diphtheria and the septicemias, and write as a footnote: "On the way out."

Should he look into the crowded street, he could designate every fourth or fifth person and say: "Without medical aid this one would have succumbed to diabetes, this one to pernicious anemia, and this one to an epidemic." Every man and woman over fifty-five he could claim as a medical conquest. The results already achieved by this winning fight for more and better lives could hardly be exaggerated. Is it not logical to attribute in part the remarkable advance of mankind in all branches of knowledge in the last half century to the longer span of productive years? Can one not say, according to the law of averages, that many of those who have contributed to the discoveries that have changed the face of the world would have died in infancy or before attaining maturity had they been born before the era of sanitation, hygiene and immunization?

Were it possible to measure the sorrow and despair that would have accompanied the deaths of millions of children and young adults without the progress of medicine, and to weigh the sum total of accomplishment and happiness that those same millions of children and young adults have brought to the world for this and for all future generations to enjoy, who could write a figure high enough to represent the grand total?

The true doctor has a heart that he puts to constant use. He may appear matter-of-fact and hardened to human suffering, of which he sees much, but the fact that his life is spent in alleviating physical pain and often mental anguish proves that he is opposed to both. A large range of anesthetics and an infinite variety of analgesics stand as a long and persistent record of the concern of medicine over all sufferers. As a result of its incessant efforts, surgery is without torture, childbirth without terror, and incurable disease without despair.

But above and beyond the conquest of physical pain, medical tradition requires of its followers the dispensation, a hundred times a day in a hundred different ways, of sympathy, encouragement and hope to the last.

In *The House of the Dead* Dostoevski heard the convicts say that their doctors could not be too much praised. "They are fathers to us," they would repeat. And he adds: "It is precisely the humanity, affability, and brotherly compassion of the doctor which prove most efficacious remedies for the patients." Few human relations are carried out on a more satisfactory basis than the doctor-patient trade of trust, of confidence, of gratitude. An

episode reported by Chevalier Jackson illustrates this point:

> A little girl seven years old, emaciated to a skeleton, arrived with the message she had not been able to swallow a drop of water for a week. . . . I put down the esophagoscope between her dry, parched lips and found a tight stricture of the esophagus . . . in its narrowest part was a corklike plug of grayish material. I removed the plug with delicate forceps. . . . After removal of the instrument the child was given a glass of water. She took a small sip expecting it to choke her and come back up. It went slowly down; she took another sip, and it went down. Then she gently moved aside the glass of water in the nurse's hand, took hold of my hand, and kissed it.
>
> No money could give satisfaction equal to that of such an achievement. That wan smile and kiss of the hand from the grateful child whose swallowing was restored after a week of water starvation meant more to me than any material remuneration; the memory of it now, over forty years later, still yields dividends of satisfaction.

Scenes similar in their significance, if not in their manner of enactment, warm the heart of most physicians and fill their days to the brim.

Failings

For all his apparent satisfaction, the medical practitioner is nonetheless capable of self-criticism. He is often conscious of the difference between the broad principles of medicine and some of the parishional thinking he indulges in. He is forced to admit that exclusiveness inspired by prejudice rather than selectivity based on qualifications sometimes presides over his choice of associates. He is not proud, either, of the way he feels toward some of his colleagues for purely personal reasons. He knows deep down inside that what he calls loyalty should be labeled more properly clannishness and that what he designates as conviction is really prejudice.

In the too rare moments when he allows himself a little excursion into psychology, the doctor wonders if, knowing *man* as he does, he knows *humanity* as he should. A sick person is not only a body attacked by disease but also a mind disturbed by worry; yet, in most cases, the former receives all the care. Focusing his attention on the physical lesion, the physician does not always see enough of the person behind it. Judging by the increasing number of articles on psychosomatic medicine in the recent literature, he seems to realize at last that, regardless of the pressure of work and the wear of routine, he must become more conscious of his patient's complexity and more attentive to the psychologic process that precedes or accompanies physical derangements.

One day, and a sad day it was, a doctor asked for too high a fee and received it. He thought no more about it until at night, when, already half asleep, he heard a voice — was it the voice of his conscience or that of his wife? He coud not tell, for they sounded so much alike. The voice kept repeating, "Was it a fee or was it a fine?" The doctor argued in his own defense on the basis of both his patient's wealth and his own service without fees to charity patients. The voice finally asked, "Does your charitable right hand know about your greedy left hand?" The doctor said nothing. He was not asleep, however, nor indeed did he sleep for some time after that.

The physician also realizes that his vision may have been too narrowly circumscribed by professional boundaries. Specialists and men in the higher echelons, seeing the patient only in their offices and in the hospital, have come to look at him too much as a *sick man* and not enough as a *man*. They have little or no chance to observe him in his natural habitat: in his part of the town, in his tenement, in the midst of his family, among the objects that make his life what it is. In his home, a man is a husband and a father; in the hospital, he is a "patient." In the shop, he is a master mechanic; in the surgical ward, he is an "acute belly." At his union local he may be a vice-president; in the operating room he is an "appendix."

A husband, a father, a master mechanic and a vice-president represent love, protection, breadwinning, skill and leadership. They live in a world of children, of production, of organization and social activity. An acute belly is only a problem to be solved, and an appendix a mere clinicopathological entity to be dealt with and properly catalogued.

The language lowers to the rank of inanimate object a person who lives, who loves, and who is loved. The practitioner of old who visited the sick in their homes was less exposed to this pitfall of the modern streamlined hospital system. Efficiency has gained, but some warmth has been lost that a little thought could easily restore.

The Doctor Looks at the World and Considers the Future

The very idea of extended medical care is recognized as a sign of the times and accepted as undeniable proof that health is now regarded as the inalienable right of man as much as individual liberty, and of equal value.

Through the course of history men have claimed, sometimes violently, things that appeared particularly desirable to them. The citizens of Rome rioted for bread and circuses; the subjects of King John fought for the Magna Charta; in 1789, the French revolted for the sake of Liberty, Equality and Fraternity; in 1917, the Soviets wanted for themselves what they called the blessings of Marxism; and for the past few years, people have been clamoring abroad and at home, in a peaceful and democratic fashion, for the public distribution of medical services. Medicine has sold itself to the world, and the world wants to make it public property. The means to attain this end are being de-

bated heatedly between the proponents and the opponents of socialization. The recognition of medicine as indispensable to the existence of a healthy and productive society far overshadows in scope and significance the issue of distribution.

The discussion itself has produced good results in bringing before the public the immense financial needs of the medical world, especially in the field of research. Until recently, the man in the street has been content to see his tax money appropriated for road building and to leave the burden of hospital maintenance and of research centers to philanthropists. But for some years he has contributed yearly some of his own money to research, and responded generously to various fund-raising drives. Millions of dollars are given every year by millions of men, women and children to help researchers find a cure for tuberculosis, poliomyelitis, rheumatic fever and heart disease. The time may come when public opinion the world over will press governments to appropriate for medical progress some of the funds now earmarked for armaments.

Speculation

It is remarkable that the 6000-year-old human race has known how to care partially for its physical ills for less than a hundred years. Judging by their attainments in other fields, men have had for centuries the required potentialities to learn more of the secrets of their nature than they did. They had already produced the philosophy and the architecture of Athens when Hippocrates *began* his teachings. Consider the pitiful state of medicine at the time of Rembrandt, of Shakespeare and of Beethoven, when painting, literature and music attained a peak never surpassed. Yet textbooks dated as late as 1870 refer to "spontaneous diseases" and to "diseases caused by conditions in the atmosphere." The progress accomplished in the past eighty years has gathered momentum rapidly, and the advances made in the last decade are astounding. Had the medicine of 1950 been available to the generation of 1850, how would the present history books read? Pure speculation, it is true, but speculation leading to a practical and timely application. Because much remains to be done to conquer illness and to prevent suffering and untimely death, the present generation would be judged severely by the coming ones if it failed to carry on its medical research at an accelerated tempo.

Standing on this medical frontier, his face turned toward the limitless spaces stretching before him, the physician often finds himself peering intently into the tantalizing unknown. Following some tenuous leads, he ventures in one direction or another. Knowing, for instance, that the *Treponema pallidum* stimulates in the brain cells the formation of ideas of grandeur, he wonders if some day the same cells might not be conditioned through endocrinology, or balanced nutrition, to create thoughts of peace, of altruism, of tolerance and of good will. The very idea seems preposterous to him, and yet there are other examples of the influence of toxic agents on the mind: the well known fabrications of alcoholic patients and their lack of will power, as well as the pleasant visions of the opium eater. And if toxic agents exert a definitely deleterious action, why could not beneficial elements be found that would have the opposite effect? The physician also wonders if, in not too distant a future, some of his descendants, wandering through unexplored fields, might not find the entrance to the dark cubicle where criminality distills its poison and apply the proper antidote.

So far as temperaments and dispositions are concerned, the wide variations observed between races, nations and tribes is usually explained on the grounds of environment and heredity. But what is heredity, if not the continued development through successive generations of traits that were once acquired? And what is environment, in the broader sense of the word? Climate, perhaps, but mostly food and the nature of the soil that produces it.

Nutrition explains the stature of the pygmies as well as that of the tall inhabitants of Ruanda on the Eastern coast of Africa. Does it not account, at least in part, for the presence on the same continent of pacific tribes and of head-hunters?

Many unknown factors lie somewhere along the devious road that starts in the mineral and organic elements of the soil and travels through the vegetable and the animal kingdom to the flesh and to the brains of men. That these factors will be identified some day and utilized to the physical and spiritual betterment of the coming generations, the physician fondly hopes. He does not mean, however, to substitute glandular function for conscience, nor does he wish to replace morals by metabolism, but neither can he forget the wisdom of the old saying of Juvenal: "Mens sana in corpore sano." Without any thought of ever subordinating the spiritual to the material, he envisions the possibility of favoring, through physical as well as through mental hygiene, the development of brilliant faculties, of balanced judgment and of true charity, which will bring enlightenment, harmony and peace to the men of tomorrow.

Beyond the Living Cell

Despite his reputation as a skeptic, the doctor indulges at times in metaphysics. When medical thought at last found itself on solid ground, it discarded the old garment of foggy theories, remnants of the days of incantation and witchcraft that had kept it afloat, and looked to matter and to facts for an answer to all its questions. But, while scrutinizing the test tube and peering through the microscope, the majority of the modern scientists soon realized that they had only discovered windows

opening on another world. Through the microscope they had studied the structural arrangements of the cell, and in the test tube they had weighed the molecule and analyzed the chemical components of the protoplasm. But when they began to align their figures and express their equation, they could not write down as the answer: *man, living man*, with his desires and his passions, with his worries and his unhappiness, with the good and with the bad that is in him. The noble faculties and the high aspirations found in his soul, even if counterbalanced and at times overshadowed by degrading propensities and low instincts, can hardly be explained on the sole basis of metabolic exchanges and oxygen combustion. Having been closer, perhaps, than anyone else to those whose life is threatened, the physician could not help noticing among them a sense of unfinished business, of unended quest for something better, more satisfying, more permanent than anything known. This also he finds difficult to explain in strictly physiologic terms.

Nor could he balance his scientific equation with the word "Life." Yet life is what he knows best. No one comes in closer contact with life in all its phases than the practitioner of medicine. He attends its external beginnings, he fights its battles, and he witnesses its departure. Every day he feels it race in the pulse of his patients, he hears it beat in their hearts, and he sees it quiver in their torn flesh. Has not the neurosurgeon operating on the brain the feeling of being near a source of power, of handling the matter that produces emotions and thoughts, the very substance capable of unraveling the sciences, of creating the arts, of perceiving the notion of eternity? Yet the actual process of cerebration is unknown. How do the physical elements of the gray matter, electrical or chemical, produce a mental operation? At which precise instant does the thought emerge from its material chrysalis to become a spiritual concept with a life of its own, capable at times of influencing the masses, of changing the face of the world and of enduring forever? At one moment the energizing power is there animating the cell and lighting the intelligence; a moment later it has withdrawn, darkness descends, and dissolution sets in. Looking at the cold object now before him, the doctor has repeatedly asked himself inwardly, if not in so many words: "*Where* was that mysterious force that just ceased to function? *What* was it? *Where is it now?*"

The word mysterious may sound unrealistic and, perhaps to some, unacceptable. Yet the physician is forced to admit that life still reveals itself in its manifestations only, and that its intimate nature remains impenetrable. At this point, he retires into his inner soul and dwells with his thoughts, in the light of his belief.

Perspective

As he ascends the gentle slopes that imperceptibly but inexorably lead him to the summit of his life, the doctor's field of vision broadens. Objects, which close to appeared out of place, become well integrated parts of the larger vista unfolding before his eyes. Persons whom he once regarded as wandering aimlessly now appear to be following a definite path. Objects and persons fit well into their environment and seem natural components in the same pattern. That some parts of the design are difficult to interpret, the physician well knows. He has been too close to sickness, to deformity, to physical pain and to mental suffering not to take them into good account. No one has been struck more often than he by the contrast between the splendor of health and the ugliness of disease. No one has seen at closer range the apparent heedlessness, not to say hostility, of nature. Must order be accompanied by a certain amount of disorder? Will man, through his persistent efforts, ever succeed in eliminating most of this disorder? If death remains inevitable, cannot life at least be healthy physically and spiritually?

Perhaps the plan of the universe calls for a gradual discovery of hidden resources, a slow subjugation of adverse elements and a painstaking conquest of ill propensities. Perhaps it is meant that humanity should thus be elevated by the Creator to the dignity of co-worker and at the same time given a permanent incentive toward self-improvement. But this participation by man in the shaping of his own destiny is an honor that carries formidable responsibilities. The undeniable progress made in the physical field does not seem matched by an equal advance in the spiritual. The events of the last decade have shaken the faith of many who hoped that virtue would keep pace with science. Yet a second and closer look reveals some encouraging signs: cruelty has gradually been forced by public opinion to take cover; slavery, which flourished for centuries, has been outlawed; executions are no longer a public spectacle; burnings at the stake in the mistaken name of God have ceased; persecutions are not tolerated in the open, and if some depraved sadists were recently let loose, they perpetrated their crimes in the secrecy of concentration camps without the knowledge of the mass of their own countrymen.

Looking at the world as he would at one of his own patients, the doctor of medicine in 1950 sees a slow but definite improvement. Having all his life tested the virtues of therapeutics and witnessed the benefits of prevention, he believes that the ailments of the vast social body are gradually responding, despite temporary relapses, to corrective laws and to prophylactic measures.

It was only thirty years ago that men began to think practically as beings bound by a common destiny rather than as nationals divided by political interests. The League of Nations and its successor, the United Nations Organization, should not be expected to correct within a generation the narrow concepts and selfish practices that have endured

for thousands of years, but, given time, they cannot fail to lift the world to a higher level. They stand today as the greatest collective monument of good will ever erected, and as the brightest light ever to shine over all men. To those who might believe that preoccupations of this nature are beyond the borders of his province, the doctor would retort that he is still thinking in terms of mental health, but mental health extended from the individual to the masses, to the nations and to the world.

Standing at the half-century mark, the doctor of medicine firmly believes that the nineteen hundreds, which have already given mankind insulin, liver extract, the sulfonamides, the antibiotics, the isotopes and chest and brain surgery, will conquer tuberculosis as well as cancer and stem the tide of most degenerative diseases. He foresees that more men and more women will live in the better world of tomorrow and that medicine together with agriculture will find ways to feed and to keep healthy a greater number of people. Before those peoples will stretch endlessly the same eternal roads opened to humanity from the beginning: the right one and the wrong one. Should they take the wrong one and use against one another their talents and the forces, hitherto unsuspected, that are now being freed, they might rapidly come to their doom. But, knowing how deep the instinct of conservation is rooted in the souls of his patients, the physician fervently hopes, with the rest of the world, that if man cannot heed the counsels of wisdom, he will listen to the dictates of fear, travel the right road and use only for his betterment what may otherwise be his destruction. To that betterment, the practitioner of medicine is eager to continue his contribution. Implemented with new tools, spurred by the task ahead, sustained by his professional ideals and inspired by his love of humanity, he wants to carry on his winning fight for better lives, convinced as he is that the lives of men are not without a purpose.

SPECIFIC LANGUAGE DISABILITY*

A Cause of Scholastic Failure

J. Roswell Gallagher, M.D.†

ANDOVER, MASSACHUSETTS

PARENTS who take a child to a physician because of failure in school usually ask if the child "needs thyroid," is "below par" or has poor vision or hearing or diseased tonsils; some physical cause is sought as the explanation of the trouble. In rare cases the cause may be organic, but failure in school is more likely to be related to emotional adjustment, interest or intelligence. In addition to those causes a significant number of children, perhaps as many as 10 per cent, fail because they are handicapped by what has come to be known as a specific language disability. It has become increasingly important that pediatricians and other physicians be informed about this condition, not only that they may be sure that it is given consideration when need for the differential diagnosis of scholastic failure arises but also that they may more effectively serve on school boards, parent-teacher committees and similar groups to which they are frequently appointed. Educators resent the intrusion of poorly informed advisers from without their ranks, but they welcome help from other specialists whose knowledge can support or augment their policies.

Scholastic failure may seem to some to be a subject beyond the realm of pediatrics or medicine. It is, however, so frequently a cause of anxiety in both the child and the family and so often a source of discouragement and maladjustment that physicians cannot entirely delegate it to the care of others, and it seems advisable that they have some knowledge of the causes of scholastic failure so that they can lend their aid to the making of an accurate differential diagnosis. It is important not only that a physician begin the investigation by determining whether the failure is associated with poor hearing or vision, infection or an endocrine disturbance, but also that subsequently, if failure is still unexplained, he see to it that the emotions, intelligence, personality and language ability are considered as possible causative factors. As the policy of education for all, regardless of interest or aptitude, gradually expands, and as not only more children attend school but also as they remain in school to higher and more demanding levels of education, more of them will be exposed to the possibility of scholastic failure and more of them will need advice concerning the cause of failure. That this is so is inevitable unless scholastic standards are lowered or manual activities are substituted for studies requiring facility in the understanding and use of words. In the present highly competitive society, which places a premium upon administrative and intellectual ability, and in view of the ambitions of parents for their children, it is little wonder that extraordinary

*From the Department of Health, Phillips Academy.
This study was aided by a grant from The Grant Foundation, Incorporated.

†School physician, Phillips Academy.

degrees of frustration and anxiety are frequently seen in those who do not do well in school.

This report describes the clinical entity specific language disability, discusses a method of investigation of a case of scholastic failure and indicates that this condition is, at the present time, not being recognized and remedied during children's early years. The cases described have been taken from a large group studied and treated at a college preparatory boarding school during the past few years; this group is highly selective, for the school is a high-standard one that attempts to admit only well qualified students. The presence of cases of specific language disability in this group emphasizes the facts that the disorder frequently occurs in children of high intelligence and that even among the economically privileged the handicap is being neither diagnosed nor treated in the early years.

The term specific language disability is a rather cumbersome one, but its use is justified by the fact that it suggests that the disorder has to do with a lack of facility in the various aspects of handling words: reading, spelling, talking and writing. Trouble in all or in only one of these fields may be present; the chances are that there will not be skill or facility commensurate with the child's intelligence, background and schooling in any of them. Another reason for using the term specific language disability is to distinguish this entity from a condition that involves nothing more than poor or slow reading. Methods *not* applicable to the treatment of those who have a specific language disability have been devised and used for the purpose of improving reading speed. This discussion has nothing to do with children or adults whose reading is slow or whose reading comprehension is poor because of poor teaching, lack of interest, frequent absence from school, little practice or relatively low intelligence; nor has it any concern with methods, beneficial or desirable as they may be, designed solely for the increase of reading speed and the improvement of reading comprehension.

Specific language disability is estimated as occurring in about 10 per cent of the population, is much more common in boys than in girls (as are stuttering and defects in color vision) and is frequently the cause of unsatisfactory performance or failure in school subjects (English, History and foreign languages) that are dependent upon facility in the handling of words. Children who have a language disability often do very well in mathematics (this handicap may be suggested by a contrast between their ability in arithmetical computation and in doing mathematical problems that involve reading) and science.

Children with a specific language disability often exhibit uneven, slow, cramped handwriting: there is evidence of their uncertainty in the variation of the size of their letters and in the variation in pencil pressure used in forming them, in the changes in direction of the slant, in the tendency to retrace letters and to erase and scratch out. Figures 1 and 2 contrast the handwriting of a boy who has a language disability with the smooth flowing, even, confident writing of the same boy after he had instruction designed to correct his handicap. Frequently, left-handed children write with the hand inverted, never having been shown that they can assume an easy, natural position if they will slant the paper toward the right (the opposite of that

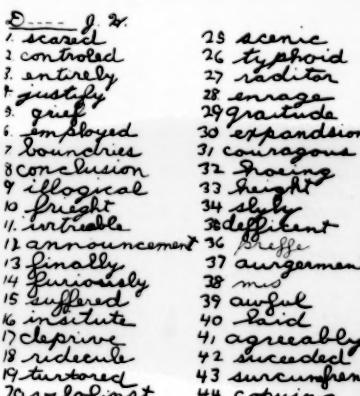

FIGURE 1. *Diagnostic Spelling Test as Written by a Student Suffering from a Specific Language Disability.*

Variation in pencil pressure and direction of slant, writing over of some letters and the bizarre nature of the spelling errors are plainly evident. (This test is to be compared with the one reproduced in Figure 2.)

used by a right-handed person) and keep the left wrist parallel to the paper's longer margin.

Slow silent reading and stumbling oral reading are common findings. In oral reading letters or syllables will be confused, transposed or omitted, and the result is such mispronunciations as avasion (aviation), hozdus (hazardous), plot (pilot) and medicore (mediocre.) Strange words may completely baffle the child, and he may be unable even to guess at a pronunciation: highly intelligent boys at the tenth-grade level may struggle to find any sort of sound to fit a simple word such as "acme." In the more extreme cases children may completely reverse the letters of words and read "tub" for "but," "snap" for "pans" or "pat" for "apt." When silent-reading tests are given, these children

are usually found to be several grades below their school placement: it is not uncommon to find reading scores that place such boys at the fifth-grade level even though they may be fifteen years old and attempting to do ninth-grade or tenth-grade work.

The spelling errors made by children who have a specific language disability are the best single diagnostic criteria; the errors are not only numerous but also bizarre. Caution should be exercised in discriminating between the child who makes many

FIGURE 2. *Reproduction of the Same Test by the Same Boy (Fig. 1) after a Year of Remedial Training.*

The smooth-flowing writing with constant slant and few errors suggest the acquisition of security and confidence in spelling.

errors because of a lack of knowledge of spelling and its rules and the child who has a true disability: the latter reverses, omits and confuses letters. It is important in testing the spelling to use a list of words that has not been studied; these children can, with difficulty, learn a list of words, but they will not long remember them and the learning process is very tedious for them. It is surprising how often teachers who rely only on themes fail to detect a language-disability case; a brief dictated paragraph is a much better aid in detecting this sort of trouble. Figure 3 contrasts a theme with a spelling test (Fig. 4) written by the same boy on the same day — many boys learn to use, without making errors, a limited vocabulary. A few examples will indicate the kind of error one may find (these were made by very intelligent boys at the eighth-grade and ninth-grade level): stuided (studied), usuraly (usually), irraltreaveable (irretrievable),

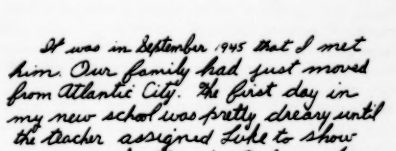
It was in September 1945 that I met
him. Our family had just moved
from Atlantic City. The first day in
my new school was pretty dreary until
the teacher assigned Luke to show
me around. The minute I saw him
I new I would like him. He had a friendly
face: was about 5 ft 5 inches tall, and
weighed about 105 pounds.

FIGURE 3. *Sample of a Theme Written by the Same Boy and on the Same Day as the Excerpt from the Spelling Test Shown in Figure 4.*

fanatual (financial), muesuem (museum), perminit (permanent), adugultal (agricultural).

Handedness as a factor in language disabilities has been much misunderstood and greatly overemphasized. Frequently, however, there is some degree of ambidexterity in these pupils, and there may be a higher than usual percentage of those who

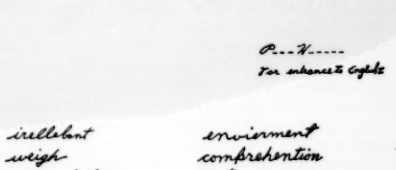

FIGURE 4. *Group of Words Written by a Fourteen-Year-Old Schoolboy as Part of His Entrance Examination to the Ninth Grade.*

This spelling test was written by the same boy, and on the same day as the theme of which the sentences in Figure 3 are a part, and a comparison of the two indicates the inadvisability of basing a diagnosis of a spelling disability upon a sample of written work in which the student has been able to make his own choice of the words he spells. Spelling errors indicative of a specific language disability may not be detected unless the student is forced to attempt to spell words that he has not selected.

are manually awkward, who exhibit mirror writing, who have speech defects or who are poor readers or spellers within their families than within the families of those who do not show a language disability.

Some disorder in speech is not uncommon in these cases; there may be a stutter or lisp or just what may be called a lack of verbal facility. The parents may not be glib talkers; not infrequently there is a family history of speech defect, and there may be a history of a delay in the time the child began to talk.

These are the outstanding signs of a specific language disability. The history will undoubtedly be one of failure in school subjects that most require the handling of words, and there will probably be a history of poor reading, poor spelling or speech disorders among the siblings, parents or relatives. Behavior troubles in school, apparent lack of interest in school and symptoms of anxiety — any or all of these may develop out of the frustration and discouragement that this handicap can produce in an intelligent child. However, to avoid errors in the diagnosis of scholastic failure, it is advisable to follow a checklist of the factors that have been found to be useful in the differentiation of the various reasons for failure in school.

The checklist should include the relation between school grade and chronologic and physiologic age (is the child competing on a level commensurate with his physical development?); participation in jobs or activities other than school (does he have too many things to do?); vision (rarely a significant factor in failure, but one that should be attended to prior to the institution of a remedial program); hearing (again, rarely the cause of trouble but always important to investigate); endocrine status (rarely, a lowered metabolic rate may account for slow progress in school); personality traits and adjustment (the most common of all causes of failure); family history of difficulty in speech, reading or spelling; and the presence of ambidexterity, mirror writing or manual awkwardness. At the conclusion of this interview it is profitable to have the patient read aloud a short paragraph, write out a spelling list from dictation and produce a brief written description of a simple picture; the last may have some useful psychologic content and will furnish an opportunity to note the manner and quality of the handwriting. This much interviewing and testing, which neither takes much time nor demands special technical skill, should indicate whether it is desirable to have further tests made by a psychologist. Reading tests will yield an approximation of the grade level at which the child reads; a standard test (such as the Stanford Achievement Test) will give the grade level of his spelling, arithmetic computation and vocabulary. A psychologist will usually give children under fourteen years of age the Stanford–Binet intelligence test; for those over fourteen, the Wechsler–Bellevue test is appropriate. The paper-and-pencil type of achievement tests whose scores can be converted into intelligence quotients are not valid for the purpose of determining the intelligence of those who have a specific language disability; these tests depend too much upon reading skill to yield a fair estimate of the intelligence of one who is deficient in reading. Psychologists often plot scores of these tests as a graphic means of explaining the situation to parent or the child: a typical specific language disability shows intelligence quotient and arithmetical ability far above reading speed and spelling skill (Fig. 5). In some children the emotional factors may be very great; for these, projective tests and psychiatric interviews may be desirable. In many cases, however, the fact that the problem has been recognized

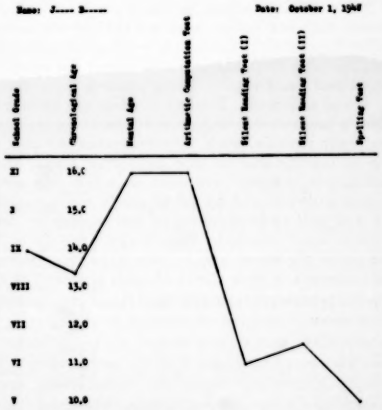

FIGURE 5. *Graph Illustrating the Wide Disparity between Intelligence and Mathematical Ability and Reading and Spelling Skill.*

This thirteen-and-a-half-year-old schoolboy, who had a Wechsler-Bellevue I. Q. of 126, scored at the eleventh-grade level in arithmetic but at about the sixth-grade level in reading and the fifth-grade level in spelling.

and is to be given attention has a considerable therapeutic effect — to have the cause of frustration explained and given attention may be all that is necessary.

The cause of specific language disability is not known with certainty and is not a matter appropriate to the purpose of this paper. However, the Orton hypothesis ("reversals" and mirror writing and confusions in letters result from the failure to develop the dominance of one cerebral hemisphere) offered suggestions of methods of treatment of great value. The basic principle of the remedial procedures advised for these children is the development of visual, auditory and kinesthetic word associations in one hemisphere so that it will become the dominant one, and so that there will be a close association between the kinesthetic, auditory and visual imagery for

symbols. Old-fashioned repetitious drill on letters, syllables and words, with the child seeing, hearing, saying and writing, gradually establishes these associations and permits him to recall letters in their proper order and position and without such confusions as "b" for "d." Careful attention to each letter in a word gradually builds familiarity — and familiarity gradually restores confidence; the child who formerly could not "sound" a word now understands its component parts and no longer skims over it in fear and ignorance. Drills on phonetics, on spelling rules, on vocabulary building and on reading exercises are all part of the proper remedial program.

Many children whose language disability is not severe may not notice it as a handicap until the stiffer competition, the longer reading assignments and the more frequent theme writing of the secondary-school years begin. These children need diagnosis and treatment. Younger children can be saved from a more severe disability by early recognition and early remedial work, by a deferral of the teaching of reading and spelling until their visual and auditory confusions have been remedied to a considerable degree and by subsequently being taught to read and spell phonetically rather than by the "whole word" method. The least one can do is to recognize the condition, explain it to the parents and attempt to save the child from punishment or discouragement because of his handicap. Every year about 5 per cent of the boys newly entering a large college preparatory school are found to have this disorder; only rarely has any one of them previously known the reason for his relatively poor ability in the handling of words. For these boys, who need better than usual skill in language, it is imperative that efforts, late as they are, be made to overcome the handicap. Intensive drill with a cooperative, intelligent boy of fifteen may produce tremendous improvement in one year; other boys may require two or three school years of remedial training for a satisfactory result.

Case Report

J. B., a 13½-year-old boy about to enter the 1st year of high school (9th grade), was referred for diagnosis because of poor spelling. Prior to this time he had had "no trouble" in school, but he said that mathematics had always been much easier for him than languages.

His past health record and present health were good. There was no evidence of an endocrine disorder. Vision and hearing were normal. He seemed tense and was a nail biter, but apparently was making a good social adjustment and had a variety of interests. His parents were college graduates; the boy seemed genuinely interested in going to school and had plans for college and a career in science.

According to the boy his father did not care to read and his mother "couldn't spell anything." He had no explanation for his own poor spelling; he had always found spelling difficult and he thought he had tried much harder than others who spelled well. He said that he had no confidence in his spelling and that it annoyed him.

His oral reading was halting, and he stumbled over long words and mispronounced some short ones. There was no stutter or lisp. In his written description of a picture he utilized only short, simple words: the handwriting was cramped, showing many erasures, and there was evidence of considerable variation in degree of pencil pressure. His performance on silent reading tests placed him at the sixth-grade level. A spelling-test score placed him at the fifth-grade level, and among the numerous errors were such ones as "sastifactorily," "conviently," "frabricate," "heidous," "desrible" and "alough." The arithmetic-test score placed him at least two years above his class. His intelligence quotient on a Wechsler-Bellevue test was 126.

The contrast in abilities presented by this boy, who did poorly in reading, atrociously in spelling and excellently in mathematics and had an exceptionally high I. Q., is obvious. During the remainder of that year he had difficulty with English and history but did very well in mathematics. After only a year of remedial work he was able to spell correctly although not fluently, improved his reading considerably, lost his feelings of anxiety and frustration when confronted with tasks requiring reading and writing and subsequently completed his secondary-school work in a very satisfactory manner.

Summary

The signs, symptoms and method of diagnosis of a specific language disability are described in detail.

The necessity of considering the existence of specific language disability in any differential diagnosis of scholastic failure, the importance of scholastic failure as a cause of anxiety and the desirability of giving early attention to children who have a language disability are emphasized.

A case illustrating the signs and symptoms of this entity and indicating that it is too infrequently recognized or treated during the early years is reported.

Bibliography

Cobb, S. *Borderlands of Psychiatry.* 166 pp. Cambridge: Harvard University Press, 1943.

Cole, E. M. Disabilities in speaking and reading. *M. Clin. North America* **22**:607-616, 1938.

Dozier, P. Specific reading disability: survey. *Journal-Lancet* **60**:202-204, 1940.

Eustis, R. S. Specific reading disability: familial syndrome associated with ambidexterity and speech defects and frequent cause of problem behavior. *New Eng. J. Med.* **237**:243-249, 1947.

Gallagher, J. R. Can't spell, can't read. *Atlantic Monthly* **181**:35-39, June, 1948.

Gillingham, A., and Stillman, B. W. *Remedial Training for Children with Specific Disability in Reading, Spelling and Penmanship.* 397 pp. Bronxville, New York: privately printed, 1946. (Distributed by Anna Gillingham.)

Greene, E. B. *Measurements of Human Behavior.* 798 pp. New York: Odyssey Press, 1941.

Koehler, W. B. Specific reading disability. *Independent School Bulletin* 1947 Series, May, 1948. Pp. 5-8.

Orton, S. T. *Reading, Writing and Speech Problems in Children: A presentation of certain types of disorders in the development of the language faculty.* 215 pp. New York: W. W. Norton & Co., 1937.

Wechsler, D. *The Measurement of Adult Intelligence.* Third edition. 258 pp. Baltimore: Williams & Wilkins Co., 1944.

THE USE OF THE DIRECT EOSINOPHIL COUNT IN THE DIAGNOSIS AND TREATMENT OF WATERHOUSE-FRIDERICHSEN SYNDROME*

W. W. Faloon, M.D.,† R. W. Reynolds, M.D.,‡ and R. T. Beebe, M.D.§

ALBANY, NEW YORK

THE use of the direct eosinophil count in the estimation of adrenocortical function was first described by Forsham and his co-workers.[1] It was suggested that such a procedure might be of value in determining adrenocortical activity in various pathologic conditions. The authors have found that secretion of 11-oxysteroid compounds by the adrenal cortex following stimulation by pituitary adrenocorticotrophic hormone (ACTH) results in a decrease in the eosinophil count. Similarly, under conditions of stress when there is adequate adrenocortical reserve the eosinophil count has been shown to fall. Thorn[2] has suggested that the eosinophil count could be used in the diagnosis of Waterhouse–Friderichsen syndrome and in the treatment of that condition. In patients with generalized sepsis adrenocortical function would be expected to increase, and the eosinophil count should fall. This sequence has been demonstrated after stress induced by surgery and by the administration of epinephrine.[2] In cases of Waterhouse–Friderichsen syndrome, however, when there is overwhelming sepsis and adrenocortical failure is produced by hemorrhage into the adrenal glands, the eosinophil count would be expected to rise. The subsequent administration of adequate amounts of whole adrenocortical extract containing 11-oxysteroid hormones should then reduce the number of circulating eosinophils, and adequate replacement therapy could be controlled by repeated eosinophil counts.

The case reported below is, to our knowledge, the first case of overwhelming sepsis with adrenal hemorrhage proved at autopsy that has been studied with repeated eosinophil counts done by the method suggested by Hills et al.[3] In addition, studies of serum electrolyte and blood sugar changes were made during therapy with adrenocortical extract.

Case Report

A 17-year-old high-school girl entered the hospital on March 20, 1949. Three days before, she had complained of a mild sore throat without other symptoms. On the night prior to entry chilly sensations, general malaise, mild headache, nausea and vomiting of bile-stained fluid developed. On the morning of admission these symptoms were accentuated, the temperature was 106°F., and a generalized, scattered purpuric rash was noted, most marked over the extremities, buttocks and face.

The past history was noncontributory.

Physical examination showed an acutely ill, moderately lethargic girl; the purpuric rash had become dark purple and more diffuse, with extensive involvement of the extremities, face and buttocks. Physical examination was otherwise negative. The spleen was not palpable and no signs of meningeal irritation were elicited.

The temperature was 101.8°F., the respirations 30, and the pulse 110; the blood pressure was 50/20.

Examination of the blood revealed a white-cell count of 5800, with 80 per cent neutrophils, 18 per cent lymphocytes and 2 per cent monocytes. The direct eosinophil count was

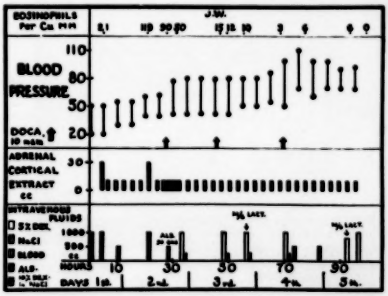

FIGURE 1. *Therapy Given on Admission.*

21 per cubic millimeter. The blood sugar was 62 mg., and the nonprotein nitrogen 48 mg. per 100 cc.

The patient had been anuric since the morning of the day of admission, and no urine could be obtained by catheterization. Lumbar puncture yielded a clear spinal fluid with a protein of 27 mg., sugar of 37 mg., and chloride of 708 mg. per 100 cc. Thirty red blood cells and 2 polymorphonuclear leukocytes per cubic millimeter were seen. No organisms were found on stained smears, and culture was negative. The admission blood culture grew *Neisseria intracellularis* (*meningitidis*), but subsequent daily blood cultures were negative. Smears and cultures from the purpuric foci failed to reveal the presence of organisms.

Therapy consisted of 400,000 units of penicillin, 2 gm. of streptomycin, and 4 gm. of aureomycin daily, and intravenous injection of fluids including glucose, saline solution, whole blood and 0.6 molar solution of sodium lactate (Fig. 1). On the 2nd hospital day, when the blood culture was reported positive for meningococcus, streptomycin was discontinued. Because of persistent diarrhea, aureomycin was stopped on the 3rd hospital day. Penicillin was increased to 800,000 units per day on the 4th hospital day. Urine was first obtained by catheterization on the 2nd day and, after the urinary output had increased to adequate amounts, 2 gm. of sodium sulfadiazine was administered intravenously on the morning of the 4th day. This was repeated again on the evening of the same day.

*From the Medical Service, Albany Hospital, and the Department of Medicine, Albany Medical College.

†Instructor in medicine, Syracuse University College of Medicine; formerly, instructor in medicine, and assistant professor of oncology, Albany Medical College.

‡Assistant in medicine, Albany Medical College.

§Professor of medicine, Albany Medical College; physician-in-chief, Albany Hospital.

Five hours after entry, because of persistent hypotension, whole adrenocortical extract therapy was started; 20 cc. was given intravenously, and thereafter 10 cc. was injected intramuscularly every 3 hours. At the end of 20 hours, the eosinophil count had risen to 119 and another 20 cc. of adrenocortical extract was given intravenously. From the 26th

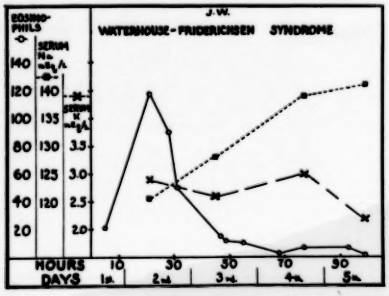

FIGURE 2. *Effect of Adrenocortical Therapy on Eosinophils, Serum Sodium and Serum Potassium.*

to the 32nd hour, 10 cc. of whole extract was administered intramuscularly every hour. The eosinophil count fell to 50 at 30 hours, and, after 10 cc. of extract every 3 hours from the 32nd to the 44th hour, the count was 15 per cubic millimeter (Fig. 1 and 2). Thereafter, whole adrenocortical hormone was administered at such a rate as to maintain an eosinophil count below 15 per cubic millimeter. On the 2nd, 3rd and 4th hospital days 10 mg. of desoxycorticosterone acetate was given intramuscularly daily. Blood was drawn daily after the 1st day for serum sodium and potassium determinations, but the results of these analyses were not available for several days.

FIGURE 3. *Appearance of the Purpuric Rash Eight Hours after Admission.*

Shortly after admission a watery diarrhea (8 to 12 stools daily) began, persisting throughout the hospital course. At the end of 8 hours, the purpuric spots enlarged and coalesced, forming large dark-purple areas (Fig. 3), and by 24 hours after entry there was evidence of superficial gangrene of the skin of the toes. Menstrual flow was noted on the 2nd and 3rd days, and intermittent vomiting also occurred on these days. Edema of the hands, arms and sacrum was noted on the 3rd hospital day.

The blood pressure gradually rose, but the patient remained anuric until the evening of the 2nd day. At this time 500 cc. of urine was obtained by catheterization. Examination of this specimen revealed a specific gravity of 1.015, reaction acid and negative tests for albumin, sugar, acetone and bile; the sediment contained 10 to 12 granular casts, 15 white blood cells and 1 or 2 red blood cells per high-power field. Subsequently, at least 500 cc. was passed daily (Fig. 4), but the

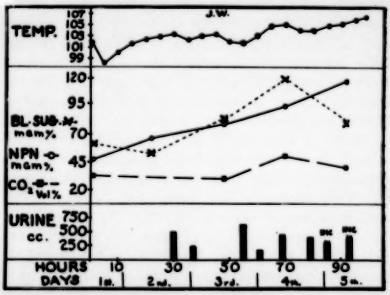

FIGURE 4. *Temperature, Blood Sugar, Nonprotein Nitrogen, Carbon Dioxide and Urinary Excretion from Admission to Death.*

Blood specimens for sugar determinations were drawn at least six hours after the preceding intravenous infusion.

specific gravity at no time exceeded 1.017, and many granular casts, white blood cells and occasional red blood cells were observed in all specimens. A ++ test for albumin was found on the 4th and 5th hospital days. In spite of the rising urinary output, the blood nonprotein nitrogen increased steadily. The serum sodium rose from 122 to 142 millequiv. per liter, and the serum potassium remained subnormal throughout, rising slightly in a specimen drawn after a blood transfusion on the 4th day (Fig. 2). The blood sugar, which fell to 53 mg. per 100 cc. on the 2nd day, when the serum sodium was 122 millequiv. per liter, rose thereafter to normal levels simultaneously with the serum sodium.

Slight improvement was noted in the patient's condition and in the purpuric rash up to the 3rd day. On the 4th day, the temperature again steadily rose, and the course was gradually downhill, with the development of episodes of generalized convulsive seizures 6 hours before death. Lumbar puncture performed 3 hours before death revealed xanthochromic, slightly cloudy fluid without increased pressure and 6600 polymorphonuclear leukocytes and 1100 red blood cells per cubic millimeter. The patient died on the 5th hospital day in spite of transfusions, concentrated human serum albumin, oxygen and continued therapy with adrenocortical hormone.

At autopsy, performed 3 hours after death, the body was that of a well developed, well nourished girl whose skin surfaces were covered with small petechial hemorrhages and on whose buttocks were large areas of hemorrhagic necrosis, which were brownish and escharotic. The visceral serous surfaces of all cavities also were speckled with minute hemor-

rhages, especially over the liver, where several extensive capsular hemorrhages were present. The cardiac ventricles were slightly dilated, and the myocardial tissues were flabby. The lungs were soft and crepitant but contained focal hemorrhages in the congested tissues.

The adrenal glands showed striking changes. They were about twice the normal size, appeared dark red and hemorrhagic (Fig. 5) and were surrounded by tense, stretched capsules. On section, the enlarged glands were found to be markedly hemorrhagic, both subcapsularly and centrally, but a narrow zone of yellow cortical tissue could still be seen, whereas the medullary portions were completely obliterated. Only one gland, the right, was sectioned, the left being preserved as a gross specimen.

The kidneys were larger than normal, each weighing 220 gm. The capsules stripped readily, leaving smooth, pinkish-red cortical surfaces. On section, the cortices were found to be thicker than normal, measuring up to 1 cm. They appeared pale and stood out sharply from the congested, dark-bluish-red medullae. The changes were those of nephrosis, presumably of the toxic type.

The brain and its coverings showed surprisingly little on gross examination both before and after fixation in formaldehyde solution. The meningeal veins were congested and in places the pia arachnoid was slightly adherent to the overlying dura. Minute hemorrhages were present over the frontoparietal regions bilaterally, but there was no gross evidence of meningitis. On section of the organ no significant changes were discovered.

Histologically, little of note was found in any of the viscera except the adrenal glands, the kidneys and the brain. Generalized acute congestion was present, as well as focal interstitial hemorrhages of the serous membranes and into the congested pulmonary and splenic tissues, and acute focal and central necrosis of the liver. Edema and focal early acute inflammation were seen in some organs, especially in the lungs and pancreas, but these changes were incidental to the bacteremia.

Multiple sections from the right adrenal gland showed the advanced and characteristic lesions of both extensive hemorrhage and extensive necrosis of this organ as it occurs in overwhelming meningococcemia. The hemorrhages were present predominantly in the zona fasciculata, but in many places they extended inward and outward to involve adjacent cortical zones, particularly the zona reticularis and the underlying medulla. The least affected region was the zona glomerulosa, the cells of which still persisted in many situations, though they were partially or completely destroyed in others. Where these cells persisted they were separated from each other by greatly distended and blood-filled capillaries; where they were destroyed they were replaced by necrotic tissue debris, hemorrhage, and accumulations of inflammatory cells and fibrin. In the regions between, where the cells were only partially injured, they showed varying degrees of degenerative changes from simple granular swelling or parenchymatous degeneration, which was most prominent, to marked cytoplasmic vacuolization or actual disintegration, with infiltration of neutrophils and sometimes with associated hemorrhage. The medullary portion of the gland was edematous and, although less extensively involved than the cortex, showed changes varying from simple degeneration to foci of necrosis that were infiltrated with neutrophils or red blood cells extending inward from the necrotic and hemorrhagic zones in the adjacent cortex.

The capsule of the gland was diffusely infiltrated with blood that had split and separated the fibrous bundles and often extended into the pericapsular fat, which was often lightly infiltrated with red blood cells, neutrophils and macrophages, and sometimes with strands of fibrin.

Examination of the blood vessels, both arterioles and venules, in and about the gland showed little of note. These vessels were readily seen in the pericapsular fat and often in the capsule itself. They were uniformly normal except for the presence of occasional inflammatory cells or erythrocytes derived from neighboring lesions in the adrenal cortex. The venules of the zona glomerulosa were markedly congested and distended with blood, but no recognizable primary inflammatory changes were present in their walls or the tissues surrounding them. In the regions where the cortical tissues were hemorrhagic and necrotic blood vessels could not be recognized because of the extensive tissue destruction. In the medullary portion, however, the vessels again became visible, and here, as in the outer cortex, they showed no striking morphologic change.

In summary, the right adrenal gland showed not only extensive and massive hemorrhage into the inner cortical regions, especially the zona fasciculata, but also extensive acute necrosis affecting almost the same regions. Even the medulla showed similar changes, though less pronounced. The smaller blood vessels, both arteries and veins, that could be studied showed no significant histologic changes.

The kidneys were congested and edematous, with the histologic changes of early acute glomerulonephritis as indicated by the presence of early acute glomerulitis with associated early acute interstitial nephritis. The most striking alterations were found in the glomeruli, which were larger than normal. The tufts were congested and swollen and filled or even distended their respective capsular spaces. They contained increased numbers of cells in the distended capillaries, the cells being chiefly neutrophils or macrophages. The surrounding capsular spaces, though narrow, contained small

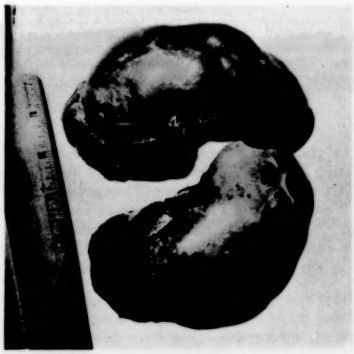

FIGURE 5. *Gross Appearance of the Kidneys and Adrenal Glands at Autopsy.*

amounts of fluid. The capillary walls were not perceptibly thickened, nor were the walls of the capsular spaces significantly altered.

About the glomeruli, and often extending for some distance into the adjacent edematous stroma, were varying numbers of inflammatory cells, chiefly the same varieties as were found in the capillaries of the glomerular tufts. These cells were most abundant about or near glomeruli but they extended peripherally into the adjacent interstitial tissue between convoluted tubules to produce a light, spreading infiltrate, which was distributed quite widely in the cortices.

The convoluted tubules showed increased amounts of protein-containing fluid, but in addition some of them had in their lumens small accumulations of inflammatory cells of the types present in the surrounding stroma. The convoluted tubular epithelium was generally low or flat, presumably owing to compression by the fluid in the lumens. The cytoplasm of these cells was swollen and granular, and sometimes portions of the cells were seen lying free in the lumens. Extensive necrosis of the tubular epithelial cells was not observed.

The medullary portions of the kidneys were even more congested than the cortices. The stroma in these regions, however, was not inflamed. Some of the collecting tubules and loops of Henle contained hyaline or cellular casts that occluded and sometimes distended the lumens. Along with these casts varying numbers of inflammatory cells were often found. The majority of the tubules, however, did not contain casts, and their lumens were clear.

The vascular system of the kidneys, both arterial and venous, showed little of note. The arteries and arterioles were not sclerosed, and neither these vessels nor the venules gave evidence of primary inflammation of their walls. Adjacent to, and sometimes invading, the walls of occasional arteries or arterioles, there were small accumulations of inflammatory cells, but they appeared to come from neighboring inflammatory lesions of glomeruli or interstitial tissues and were not primarily lesions of the vessels themselves.

The renal pelves and peripelvic tissues demonstrated little of note except for desquamation of some of the lining pelvic epithelium and small focal hemorrhages and inflammatory-cell accumulations in the edematous peripelvic fat.

The renal lesions, therefore, were those of early acute glomerulonephritis manifested by acute inflammation of the glomeruli, with extension into the interstitial tissues to produce a degree of early acute interstitial nephritis not usually seen in acute glomerulonephritis. These changes, together with interstitial edema, congestion and the tubular degenerative changes, which were pronounced, were the cause of the terminal renal failure observed clinically.

Sections from the brain showed generalized congestion and edema of both the leptomeninges and cerebrum with focal hemorrhages into the subarachnoid space, focal acute venous thrombi and evidences of very early acute meningitis that occasionally involved the adjacent cerebral cortex as well. These changes were all minimal, however, and were overshadowed by the more extensive and serious lesions of the adrenal glands and the kidneys.

Discussion

In this case of proved adrenal hemorrhage occurring during the course of acute meningococcal septicemia, the correlation of changes in the eosinophil count, blood sugar and serum sodium is striking. Although the patient's eosinophil count was low and the blood sugar was within normal range upon entry to the hospital, on the second hospital day the eosinophils had risen to a high figure for patients under stress, and the blood sugar had decreased to a hypoglycemic level. At this point, the serum sodium was also low, and clinically the patient was unimproved. Since the chemical changes were consistent with those usually reported for adrenal insufficiency, it may be assumed that at this point, or prior to it, adrenocortical failure had occurred. It should be pointed out, however, that the low serum sodium may have been due at least in part to loss of electrolyte in the watery diarrhea of the previous twelve hours. This possibility was corroborated by the low serum potassium, which was in contrast to the usual finding of elevated serum potassium in cases of adrenal insufficiency. However, intestinal loss appears to have been an unlikely cause of the degree of hyponatremia found in this case even after the administration of saline solution, unless adrenal function had also been disturbed. It is of note that the electrolyte, glucose and eosinophil changes occurred even after therapy with adrenocortical extract had been begun. Thus, it is inferred that the administration of 10 cc. of whole extract intramuscularly every three hours during the period between the sixth and twentieth hospital hours was inadequate in the presence of infection and in the absence of functioning adrenal tissue. After the administration of increased amounts of adrenocortical extract, the eosinophil count fell within the next twenty-four hours to a level consistent with that usually seen during other types of stress. With this fall in eosinophils, which was maintained throughout the patient's course, the blood sugar rose consistently except for the last hospital day and even on this day was above the hypoglycemic range. The serum sodium rose in an even more dramatic fashion, reaching values within the normal range on the fourth and fifth hospital days. There was a concomitant rise in blood pressure during this period. Although the changes noted may have been the result of the adrenocortical extract and desoxycorticosterone acetate given parenterally, we cannot exclude the possibility that the adrenal glands regained some function and contributed to the lowering of the eosinophils as well as to the rise in the serum sodium and blood sugar. This possibility is enhanced by the fact that after the third hospital day the administration of adrenocortical extract in doses of 10 cc. every three hours was sufficient to keep the eosinophil count below 15 per cubic millimeter, whereas during the acute stage of the illness — namely, in the first twenty-four hours — this dosage was not sufficient to keep the eosinophil count from rising.

Table 1. *Effect of Therapy on White-Cell Count, Lymphocytes and Eosinophils.*

Period of Hospitalization		Total White-Cell Count	Total Lymphocytes	Eosinophils
Day	Hour			
		per cu. mm.	*per cu. mm.*	*per cu. mm.*
1	1	5,800	1,566	—
	6*	14,700	2,646	21
2	26†	11,150	—	90
4	68	14,150	1,540	3
5	93	20,650	—	6

*Adrenocortical extract, 10 cc. every 3 hr. intramuscularly, begun.

†Adrenocortical extract increased at 24th hr. — 20 cc. intravenously and 10 cc. every hr. intramuscularly.

The work of Dougherty and White[4] suggests that stimulation of the adrenal glands or the administration of adrenocortical extract will reduce the number of circulating lymphocytes. Such a change would corroborate the decrease in the eosinophil count that we have demonstrated. It may be seen from Table 1 that between the first and fourth hospital days there was a decrease in the circulating lymphocytes but no change in the total number of white cells. This suggests that the combination of eosinopenia and lymphopenia was produced by the same mechanism, probably set off by adrenocortical hormone.

In spite of the fact that the parenteral administration of fluids and electrolytes appears to have been conservative, the blood chemical changes were accomplished without endangering the patient with massive fluid infusions, which might have placed a burden on the cardiovascular system. In fact,

the appearance of edema on the third hospital day was considered a contraindication to massive fluid therapy although the nonprotein nitrogen was elevated and the carbon dioxide combining power was at acidotic levels up until that day. The renal findings at autopsy suggest that the rising nonprotein nitrogen and low carbon dioxide combining power were due to renal failure and not to primary adrenal insufficiency inadequately treated with adrenal hormones. In patients subjected to hypotension or to intravascular hemolysis with subsequent renal shutdown, the danger of large amounts of fluids intravenously has been well demonstrated.[5] In view of this and of the suggestive findings in the kidney at autopsy, it is well to emphasize that this patient was suffering not only from adrenal insufficiency but also from severe renal disease involving both glomeruli and tubules.

The low serum potassium that persisted throughout the patient's hospital course is of significance in that it may have contributed to her death. Potassium deficiency was suspected, but therapy was not undertaken since the determinations were not available until the final hospital day and also because it has been demonstrated that potassium therapy may be dangerous in renal failure.[6] In the presence of increasing blood nonprotein nitrogen such as occurred in this patient, an increasing serum potassium level would be expected. That the level did not increase may have been the result of one or a combination of three possible mechanisms: excessive potassium loss in the stools, dilution of serum potassium concentration as the plasma and extracellular fluid volume increased during therapy and increased urinary potassium excretion due to desoxycorticosterone administration. The possible dangers of desoxycorticosterone therapy should be mentioned since diarrhea and vomiting are common manifestations of overwhelming sepsis and are frequently found in the Waterhouse–Friderichsen syndrome. This sodium-retaining steroid increases the renal excretion of potassium, and this action of desoxycorticosterone may have contributed to the potassium loss, which was initiated by the diarrhea and aggravated by the occurrence of menstruation on the second and third hospital days. Unfortunately, urine potassium studies were not done, and the possibility of desoxycorticosterone-induced potassium loss in the urine remains unproved.

The cause of death cannot be established, but it is apparent that a number of circumstances may have been contributory. Although the adrenocortical extract administered was sufficient to reduce the eosinophil count and raise the blood pressure, blood sugar and serum sodium, it may not have been sufficient to overcome the generalized damage that occurred during this patient's septicemia. More intensive therapy may be indicated in future cases of this syndrome. The occurrence of the low serum potassium due to the persistent, voluminous diarrhea may have been aggravated by the administration of desoxycorticosterone, and careful potassium therapy may be indicated in similar cases, with omission of desoxycorticosterone. The negative blood cultures after entry and the arrest of the spread of skin lesions suggest that the chemotherapy was adequate and that the septicemia per se was successfully overcome. Since the eosinophil rise occurred in the first twenty-four hours and the patient was kept alive for a total of ninety-nine hours, it appears that she died from causes other than adrenal failure. As suggested above, renal damage may have been the most important factor in this patient's death.

Summary

A case of Waterhouse–Friderichsen syndrome proved at autopsy, with the use of direct counts of circulating eosinophils and repeated serum sodium and potassium, as well as blood sugar determinations, is presented. The findings in this case indicate that the diagnosis of Waterhouse–Friderichsen's syndrome may be established before death by the use of the direct eosinophil count. Although the initial changes in the eosinophils, blood glucose and serum sodium were corrected toward normal by the administration of adrenocortical hormone, the evidence also suggests that renal failure and potassium deficiency contributed to the patient's death.

We are indebted to Dr. Arthur W. Wright, professor of pathology, Albany Medical College, for assistance in the preparation of the autopsy material, and to Dr. Fred Moore for permission to use photographs taken by him.

References

1. Forsham, P. H., Thorn, G. W., Prunty, F. T. G., and Hills, A. G. Clinical studies with pituitary adrenocorticotropin. *J. Clin. Endocrinol.* **8**:15-66, 1948.
2. Thorn, G. W. Studies on pituitary adrenal relationships. *Tr. Am. Clin. & Climatol. A.* **60**:168-183, 1948.
3. Hills, A. G., Forsham, P. H., and Finch, C. A. Changes in circulating leukocytes induced by administration of pituitary adrenocorticotrophic hormone (ACTH) in man. *Blood* **3**:755-768, 1948.
4. Dougherty, T. F., and White, A. Evaluation of alterations produced in lymphoid tissue by pituitary-adrenal cortical secretion. *J. Lab. & Clin. Med.* **32**:584-605, 1947.
5. Strauss, M. B. Acute renal insufficiency due to lower-nephron nephrosis. *New Eng. J. Med.* **239**:693-700, 1948.
6. Winkler, A. W., Hoff, H. E., and Smith, P. K. Toxicity of orally administered potassium salts in renal insufficiency. *J. Clin. Investigation* **20**:119-126, 1941.

ABSENCE OF A TOXIC EFFECT OF FOLIC ACID ON THE CENTRAL NERVOUS SYSTEM OF PERSONS WITHOUT PERNICIOUS ANEMIA*

EARLE A. HARVEY, M.D.,† ISABEL HOWARD, S.B., AND WILLIAM P. MURPHY, M.D.‡

BOSTON

SUFFICIENT evidence has accumulated to indicate that folic acid alone cannot be safely used for the treatment of pernicious anemia.[1-3] Response of the erythrocytes has not been so rapid[4] and the maintenance of normal erythrocyte levels has not been so uniform with folic acid as with liver extract administered parenterally. The failure of folic acid to control the manifestations of spinal-cord damage makes its use alone a definite hazard in this disease. There are conditions in which folic acid is a valuable means of therapy, and even in pernicious anemia situations may arise for which its use in conjunction with liver or its extracts may be desirable. A series of well controlled clinical studies will be necessary to establish the safety of folic acid for use in conditions other than pernicious anemia. McGavack and Weissberg[5] have reported the results of the treatment of 55 persons without pernicious anemia. Each of their subjects ingested daily 20 mg. of folic acid, which, the authors point out, is a larger dose than is generally advised. During periods of observation varying from four to eleven months no evidence of a toxic effect on the central nervous system was demonstrated.

Failure of folic acid to control the manifestations due to spinal-cord damage in pernicious anemia has been observed by several investigators.[1-3] The development of disturbances suggesting damage to the spinal cord in 2 patients without pernicious anemia during treatment with folic acid has been reported.[6]

To determine the possibility of a toxic effect of folic acid on the central nervous system in persons without pernicious anemia, 40 subjects were selected who had no evidence of a primary blood dyscrasia. All but 4 of the group were females, several of whom had a mild hypochromic anemia. Each patient received a careful neurologic examination at the beginning of the study and at monthly intervals thereafter. This included testing of the common tendon reflexes of the upper and lower extremities; vibration, tactile, temperature and position senses; and balance and muscle strength. No significant variation from normal was demonstrated by the control studies.

After the control study each patient was started on a dose of 20 mg. of folic acid to be taken daily by mouth. Eighteen of the group were followed for twelve months, 19 for six to nine months, and 3 for three months. The repeated neurologic examinations remained negative throughout the period of observation, with no indication of spinal-cord or peripheral-nerve damage.

Venous blood was studied during the control period and at monthly intervals thereafter for the determination of the hemoglobin content, red-cell and white-cell counts, hematocrit and individual cell volume. Thirteen, all females, showed initial hemoglobin levels below 12 mg. per 100 cc. In 4 of these the initial red-cell count was below 4,000,000. In 10 of the 13 subjects with initial hemoglobin levels below 12 gm. per 100 cc. no increase in these levels was noted on folic acid treatment alone. Two subjects had initial hemoglobin levels of less than 10 gm. and in another a level below 10 gm. developed during the period of observation. The ingestion of folic acid did not prevent an increased anemia in 2 of these subjects (in 1, from hemorrhage in a patient with familial telangiectasis, and in the other from cause unknown), nor did it improve the hemoglobin level of the third subject, whose initial level was 7.0 gm. per 100 cc. In each of these 3 cases the addition of 1.8 gm. of ferrous sulfate daily to the 20 mg. of folic acid was followed by improvement at a rate probably not faster than might be expected were the iron used alone. The hematocrit varied much as did the hemoglobin content. The individual cell volume was small in the three subjects who had moderately severe anemia but was otherwise within normal limits.

White-cell levels began and remained within normal limits throughout the period of observation in all but 1 case. In this subject the count varied between 4500 and 5900 during treatment but without indication that it was influenced by the folic acid.

An increase of appetite and a slight gain in weight were recorded for a few of the subjects during the first few weeks of treatment, but these did not persist throughout the period of observation.

SUMMARY

Forty subjects without pernicious anemia received 20 mg. of folic acid daily for three to twelve months. No evidence of spinal-cord damage or other than a slight to moderate degree of hypochromic anemia was demonstrated by control studies before the treatment was started.

None of the subjects demonstrated spinal-cord or peripheral-nerve damage during the period of

*From the Medical Clinic, Peter Bent Brigham Hospital, and the Department of Medicine, Harvard Medical School.

†Associate in medicine, Peter Bent Brigham Hospital.

‡Lecturer in medicine, Harvard Medical School; senior associate in medicine, Peter Bent Brigham Hospital.

treatment. This confirms other recent studies and supports the accumulating evidence that folic acid does not have a toxic effect on the central nervous system of persons without pernicious anemia.

In this study folic acid showed no influence on the blood of persons with normal hemoglobin levels or in those with slight to moderate anemia. The rate of hemoglobin increase following the use of iron in conjunction with folic acid in 3 patients with moderately severe anemia was not definitely more rapid than it would have been with the iron alone.

References

1. Hall, B. F., Watkins, C. H., and Hargraves, M. M. Experiences with synthetic folic acid in treatment of anemias of macrocytic type. *Proc. Central Soc. Clin. Research* **19**:55, 1946. (Abstr.)
2. Heinle, R. W., and Welch, A. D. Folic acid in pernicious anemia; failure to prevent neurologic relapse. *J. A. M. A.* **133**:739-741, 1947.
3. Vilter, C. F., Vilter, R. W., and Spies, T. D. Occurrence of combined system disease in persons with pernicious anemia during treatment with Lactobacillus casei factor (folic acid). *J. Lab. & Clin. Med.* **32**:335, 1947.
4. Clark, G. W. Survey of treatment of pernicious anemia in relapse. *Am. J. M. Sc.* **216**:71-77, 1948.
5. McGavack, T. H., and Weissberg, J. Folic acid. *New York State J. Med.* **49**:206, 1949.
6. Ross, J. F., Belding, H. W., and Paegel, B. L. Development and progression of subacute combined degeneration of spinal cord in patients with pernicious anemia treated with synthetic pteroylglutamic (folic) acid. *Blood* **3**:68-90, 1948.

MEDICAL PROGRESS

SEASON, NUTRITION AND PELLAGRA*

Frederick Sargent, II, M.D.,† and Virginia W. Sargent, M.S.

Chicago, Illinois

THAT nutritional deficiency diseases vary seasonally in incidence is a well established fact, and yet most authors have regarded this variation as an incidental feature in the natural history of these diseases. The explanations offered have considered seasonal changes only in available food supply, composition of food consumed, food habits and economic status. By such reasoning the human being becomes a standard digestive machine — functioning well with adequate food and breaking down with inadequate food. The human being cannot be so standardized in any theory of the etiology of nutritional deficiency disease,[1] for man himself exhibits seasonal variations in chemical processes and functional mechanisms.[2, 3] Such metabolic variations undoubtedly play a role in the etiology of deficiency disease. Since few writers have critically examined the relation of these metabolic changes in man to the seasonal variations of nutritional deficiency diseases, an investigation of this relation has been undertaken. To date, the investigation has been primarily a survey and analysis of several hundred papers appearing in the literature. For this report, pellagra, a multiple deficiency disease with a definite seasonal periodicity, was chosen because there was available, in one of Goldberger's papers,[4] a large number of unanalyzed data on food used in a Southern textile mill community where pellagra was endemic. In this publication Goldberger raised the question whether or not there was a relation between diet and the seasonal incidence of pellagra. Because of the lack of available knowledge on the pellagra-preventive value of the food used, he had to conclude that "it is impossible at this time [1928], therefore, to evaluate in a definite objective way the significance of the observed seasonal variations in the food supply of *In.* village during 1917 in relation to the observed seasonal incidence and prevalence of the disease in that village."[4] Thus, Goldberger, who had demonstrated the nutritional etiology of pellagra, was unable to evaluate fully the meaning of his observations. Indeed, it was only about a decade ago that the complex nature of pellagra began to be understood. Now "it appears that pellagra, as it occurs endemic among a corn-eating population, is a disease involving the metabolic interrelationships of niacin, pyridoxine, tryptophane, indoleacetic acid, perhaps adenine, and at least one other unidentified toxic substance, to say nothing of the effects of other vitamin [especially the thiamine, riboflavin, and folic acid[5]] and amino acid deficiencies and general level of protein intake associated with such a diet."[6] Reliable data on the niacin content of foods have only become available within the past five years.[7] Hence, it has been possible only in recent years for investigators to attempt to evaluate quantitatively Goldberger's observations on food used and seasonal incidence of pellagra. Such an evaluation is the basis of the present paper.

*The opinions expressed in this paper are those of the authors and do not necessarily represent the official views of any governmental agency.

†Clinical instructor in medicine, University of Illinois College of Medicine; medical officer (internal medicine), Medical Nutrition Laboratory, Chicago, Illinois, an installation under the jurisdiction of The Surgeon General, Department of the Army.

Assumptions Necessary to Evaluation

An evaluation of Goldberger's data requires a number of assumptions that depend upon special characteristics of the data and their collection. The dietary data to be analyzed in this report were collected thirty-two years ago, at a time when little

was known about the details of the composition of food, by pioneers in the field of the technics of nutritional surveys. Not only is the composition of the original food unknown but also the methods of storage and cooking that food are not recorded. Furthermore, agricultural methods have changed in the intervening decades with their resultant effect on the composition of food. Now, thirty-two years later, the proximate composition of these dietary data can only be determined approximately even when the most recent food tables are used as a basis for calculation. There is no way to allow for these variables and unknowns, for accurate information regarding them is not available.*

Goldberger's dietary data were collected in a mill village with a population of 803 in six surveys: March 18-31, May 14-27, July 22–August 5, October 8-21, and November 26–December 9, 1917. From these data, estimates were made of the monthly food used in various households. "Food used" is, of course, not strictly synonymous with "food intake," but, for the purpose of this paper, the estimates of food used are considered reliable estimates of food intake. If anything, this assumption might lead to an overestimation of the food intake rather than to an underestimation. Two facts, however, suggest that this assumption is reasonable. The first is that, in his report on the 1916 cotton-mill village studies, Goldberger[3] states: "Since . . . but few of the families of the households purchased in quantities large enough to constitute a supply for more than 15-day period, the data for practical purposes, may be considered as records of consumption plus refuse and waste."[3] The basic data in both the 1916 and the 1917 surveys were collected similarly. Secondly, in preparing his estimates of monthly food used in the village studied in 1917, refuse was allowed for according to the caption of Table 36.[4] Hence, the estimated food used may reasonably be considered equivalent to consumption.

Other investigators have more recently presented figures on food consumption by various populations. Since some of these more recent data deal with seasonal changes in the nutrient values of diets collected by dietary surveys, this information may be compared with the seasonal variations in the calculated nutrient content of dietaries published by Goldberger. Such a comparison is made in this paper and demonstrates that the trends in the various data are similar both qualitatively and quantitatively. This fact enhances the validity of our assumption that the estimates of food used will serve as reliable measures of the food eaten by the population of the mill village.

Another important consideration concerns the population represented in the dietary surveys of Goldberger. The dietary data were collected from all households of the mill-village community, in which white mill operatives and their families resided. The household was the unit, and the dietary data have been expressed, according to the Atwater scale,[9] as quantity per adult male unit. Thus, the average values of food used do not apply only to pellagrins or to pellagrous households. Since the dietary data include both pellagrous and nonpellagrous persons, the following assumption must be made. If the nutrient value of the food used by the average person fluctuated seasonally about a certain mean value, one might expect the nutrient value of the food used by the pellagrin to have varied similarly, but the mean value would be lower. In other words, the average diet of the pellagrin would have a somewhat inferior nutrient value than the nutrient value of the diet of the average person. When pellagrous and nonpellagrous households were compared, the diets were, in many respects, quite similar. The principal differences between the two household groups were in the consumption of fresh meat and milk. These foods were consumed in smaller amounts by the pellagrous households.[9]

Within the pellagrous households, we further assume that the diet of pellagrous and nonpellagrous members was qualitatively similar. Thus, Spies[10] has observed that in households in which deficiency disease occurred, black tongue could be found among the household pets. But why did not all members of such households develop pellagra? The answer is that inadequate food intake was not the only cause of deficiency disease. Malnutrition may also be caused by such conditioning factors as inadequate absorption of nutrients, interference with utilization of nutrients and increased requirements, destruction or excretion of nutrients.[1, 11-13] The influence of at least one of these conditioning factors upon the pellagrous households studied by Goldberger may be inferred from a consideration of the sex and age distribution of pellagra within these households. Among the 24 mill villages studied by Goldberger,[4] two groups contributed over 90 per cent of the total cases of pellagra as demonstrated in his Table 8. Children aged two to fourteen years made up 44 per cent of the persons of pellagrous households. This age group contributed 67 per cent of the incidence of pellagra. Females of the childbearing age (twenty to forty-nine years) made up 19 per cent of the persons of pellagrous households. This age group contributed 24 per cent of the incidence. In both cases the conditioning factor most probably involved was increased requirements for nutrients due to growth or pregnancy and lactation. The thesis advanced in this report is that seasonal influences on metabolic function represent another such conditioning factor.

Methods

Source of Nutritional Data

In 1917 Goldberger and his co-workers[4] made nutritional surveys in 24 South Carolina textile communities. The population considered was ex-

*The general problem of dietary surveys and their interpretation has been fully discussed in a recent Bulletin of the National Research Council.[8]

clusively white mill operatives and their families. The incidence of pellagra in these villages averaged 50.6 per 1000, and 18.5 per cent of the households had, on the average, at least 1 case of pellagra. In certain villages records were kept regarding food used each month by the mill operatives and their families. The details of these records have been published for 1 village. In this village, which Goldberger regarded as representative of the 24 studied, the incidence of pellagra was 100.8 per 1000 among the 803 persons examined, and 34.6 per cent of the households had at least 1 case of pellagra. The published results of the nutrition survey in this mill village have supplied the principal data used in this report.

The survey technics used by Goldberger's team were very similar to those employed at the present time in field surveys. The monthly incidence of pellagra in the village under discussion was ascertained by biweekly house-to-house canvasses by trained medical observers. Only cases showing at least "the distinctive dermatitis" were accepted as cases of pellagra. The onset of the particular attack was dated from the first appearance of the characteristic eruption. Goldberger[4] states that "our date of 'onset' should be interpreted as indicating that virtually in all instances the illness began not later than this date and that, in many, it may actually have begun (probably did begin) some two or three weeks earlier." In the great majority this "onset" was correct within less than two weeks. The data on the monthly incidence of pellagra in the village used in this report were taken from Goldberger's[4] Table 11. The figures used refer only to the incidence of *new* cases, not to prevalent cases.

The dietary data were collected by six house-to-house canvasses in which statements were obtained regarding household food supplies, by monthly records of sales from stores from which mill operatives purchased their food and by monthly records of milk production by local cows. All this information was summarized, and estimates were made of the monthly household supplies of some 16 classes of foodstuffs, expressed in Goldberger's[4] Table 36 as "daily average number of grams (*less refuse and water*) per adult male unit." These estimates provide a basis for calculating the month-to-month proximate composition of the food used by the mill operatives of this representative village.

TABLE 1. *Modifications Used in the Calculation of the Nutrient Value of Goldberger's Data on the Basis of Values of Proximate Composition Given by Frazier and Friedemann.*[5]

Food Item from Goldberger	Modified Calculation
Milk (including cheese)	100 per cent milk
Salt pork and lard	50 per cent salt pork, January–October; 40 per cent salt pork, November and December*
Cereals (chiefly wheat flour and corn meal)	70 per cent wheat flour and 30 per cent corn meal*
Dried and canned legumes (except string beans)	Dried peas, beans
Preserved fruit (including canned and dried fruit)	Canned fruit
Sugar, molasses and syrup (including jellies and jams)	80 per cent carbohydrate

*Percentages calculated from data of six surveys cited in Goldberger's[4] Table 35.

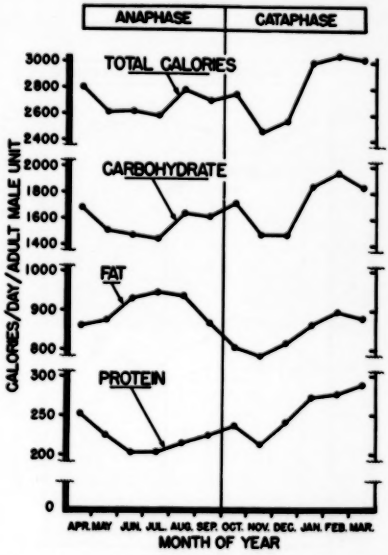

FIGURE 1. *Monthly Variation in Calories, Carbohydrate, Fat and Protein in Village in South Carolina, 1917.*
The calculated intakes are expressed as calories per day per adult male unit. The year begins in April and ends in March. The terms anaphase and cataphase are defined in the discussion. (Data calculated from dietaries of Goldberger et al.[4]*)*

Calculation of Proximate Composition of Dietary Data

The monthly proximate composition of the food used in the mill village was calculated from data presented by Frazier and Friedemann[5] in their Table 5. Their figures were derived from tables of the National Research Council and from chemical analyses for niacin carried out in their laboratory. These particular values were used because Frazier and Friedemann had compiled them in connection with an appraisal of the nutrient content of the

pellagra-producing and pellagra-preventive diets of Goldberger and his associates, Voegtlin, Ruffin and Smith, Spies and Sydenstricker. The figures in their Table 5 applied specifically to the different foods used in the mill villages; thus, calculation of the data for the village under discussion was greatly simplified.

Since, however, some of the food listed in Goldberger's Table 36 did not exactly correspond with the items listed in Frazier and Friedemann's Table 5, the modifications enumerated in our Table 1 were introduced. All other items were similarly identified in both Table 36 and Table 5, and so no modifications were introduced in the calculation of their proximate composition.

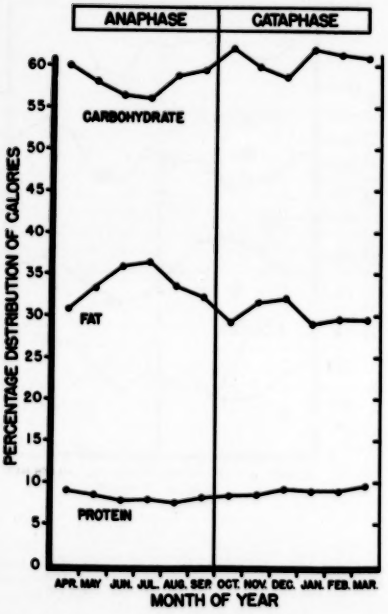

FIGURE 2. *Percentage Distribution of Calories in Food Used in South Carolina Village, 1917, in Relation to Months of the Year.*

The year begins in April and ends in March. The terms anaphase and cataphase are defined in the discussion. (Data calculated from dietaries of Goldberger et al.[4])

RESULTS

Monthly Variation in the Calculated Intake of Calories Protein, Fat and Carbohydrate

The calculated intakes of calories, protein, carbohydrate, and fat were about what one would expect for the economic level of the mill-village population. The intake of protein ranged from 51.2 to 67.8 gm. per day per adult male unit, that of fat from 87.2 to 105 gm., and that of carbohydrate from 364 to 470 gm. The intake of calories ranged from 2487 to 3057 per day per adult male unit.

The seasonal variations in the calculated intake of calories, protein, fat and carbohydrate are shown graphically in Figure 1. In this figure the intakes are expressed as average daily calories per adult male unit. The data are charted with the year beginning in April and ending in March, and the year has been divided into two periods: the anaphase and the cataphase.*

Inspection of Figure 1 reveals the following points:

The seasonal variations of total calories, carbohydrate, and protein are similar. Each shows a biphasic annual swing with a primary maximum in the winter and a secondary maximum in the late summer or early autumn.

The annual biphasic swing for fat is again evident. The primary maximum occurs in the summer and the secondary maximum in the winter.

All four curves show minimal values in the late autumn.

The curves for total calories, carbohydrate and protein show minimum values in the summer concurrently with the primary maximum of the fat intake.

Monthly Variations in the Distribution of Calories

The distribution of calories among protein, fat and carbohydrate is fairly constant, for throughout the year the relative distribution is maintained. The percentage of calories from protein is low, ranging from 7.6 to 9.5. The percentage of calories from fat is high, varying between 29.0 and 36.4. The percentage of calories from carbohydrate ranges from 56.0 to 62.2.

Figure 2 shows the monthly trends indicating that there is a biphasic swing in the percentages of carbohydrate and fat similar to that seen in Figure 1, that the percentages of fat and carbohydrate vary in opposite directions, and that the percentage of protein shows little variation.

*The reasons for presenting the data of Figures 1, 2 and 3 in this fashion and the definition for the terms anaphase and cataphase are dealt with below in the discussion.

Monthly Changes in the Incidence of Pellagra in Relation to the Calculated Nutrient Value of the Diet

So far an analysis of Goldberger's data has revealed that the population of the village under discussion consumed a low-protein diet. The nutrient value of the dietary intake of this group has been further assessed by calculation of the intake of animal protein, niacin, thiamine and riboflavin. The monthly calculated intake of animal protein ranged from 7.8 to 11.6 gm. per day per adult male unit, that of niacin from 6.01 to 8.29 mg., that of thiamine from 0.88 to 1.24 mg., and that of riboflavin from 0.50 to 0.67 mg. The calculated intakes of niacin and thiamine approximate very closely modern recommended levels.[5, 14] The calculated intakes of animal protein and riboflavin are definitely low.[5, 14]

Definite monthly variations occurred in the consumption of these food factors (Fig. 3). In this figure the four lines represent the calculated monthly intake of animal protein, niacin, riboflavin and thiamine. The shaded area represents the monthly incidence rate of pellagra (new cases). So far as the variations in calculated intake are concerned, the following facts stand out: the seasonal variations in the intake of animal protein, niacin and thiamine are similar; the intake of animal protein, niacin and thiamine is lower during the period April–September than during the period October–March; and the intake of riboflavin shows relatively little change from month to month.

Certain interesting facts appear when the dietary data are compared with the incidence of pellagra. One should recall, in studying this association, that the onset of pellagra, as defined by Goldberger, is, in most cases, about two weeks later than the actual onset of clinical symptoms. Three significant associations are revealed (Fig. 1 and 3):

During the period of two or three months prior to the beginning of the annual outbreak of pellagra, the calculated intake of nutrients by the population of the mill village under investigation had been high and reached maximal levels in March coincident with the appearance of the first cases of pellagra. This relation applies especially to the calculated intake of total calories, carbohydrate, total protein, animal protein, thiamine and niacin. Thus, when pellagra began, the population had been and was consuming the maximum levels of pellagra-preventive factors (animal protein, thiamine and niacin). During the same period they were also consuming the maximum amount of corn meal (which contains pellagragenic factors), for the intake of corn meal by the population paralleled exactly the intake of carbohydrate (25 per cent of the calories from carbohydrate were contributed by calories from corn meal).

When the wave of pellagra reached its crest in June, the calculated intakes of total calories, carbohydrate (and corn meal), total protein, animal protein, thiamine and niacin were falling. The calculated intake of fat, on the other hand, had reached a maximum level.

The annual wave subsided and virtually disappeared (July–September) before any large changes occurred in the intake of total protein, animal protein, thiamine and niacin. The intake of animal protein continued to decrease at this time, and the intakes of total protein, thiamine and niacin increased slightly. While the wave of pellagra was subsiding small maximum levels occurred in the calculated intakes of total calories, carbohydrate (and corn meal) and riboflavin. The intake of fat reached a minimum.

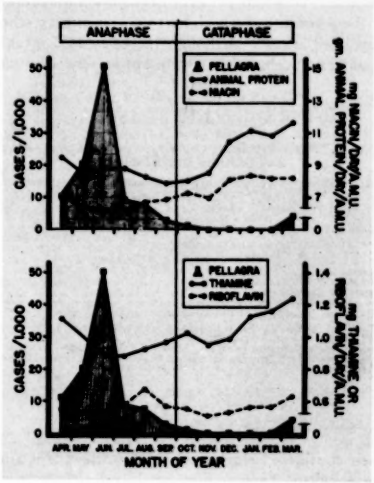

FIGURE 3. *Monthly Incidence of Pellagra in Relation to Calculated Monthly Intake of Animal Protein, Niacin, Riboflavin and Thiamine in South Carolina Village, 1917.*

The year begins in April and ends in March. The terms anaphase and cataphase are defined in the discussion. A. M. U. = adult male unit. (Data calculated from dietaries of Goldberger et al.[5])

The facts presented in Figures 1, 2 and 3 reveal that the population of the village consumed a low-protein (especially low in animal protein) diet containing corn meal (114 to 150 gm. per day per adult male unit). The niacin and thiamine contents were adequate according to modern standards,[5, 14] but the riboflavin content was definitely low. Certain seasonal changes occurred in the levels of the nutrients consumed. The population was consuming the highest levels of the various nutrients when the outbreak of pellagra began. The consumption of these nutrients was relatively the lowest when the wave of pellagra disappeared. These facts pose the problems: Why did pellagra begin when the intakes of the nutrients were highest and disappear when they were lowest? Although the calculated intakes of some of the nutrients were apparently adequate when considered singly, were the intakes still adequate when known dietary interrelations were brought into the picture? Were the seasonal changes in calculated intakes sufficiently great to account for the outbreak of deficiency disease?

TABLE 2. *Mean Proximate Composition of 40 Spring and 40 Fall One-Day Diet Histories.**

NUTRIENT	CATAPHASE SPRING†	ANAPHASE FALL†
Calories	2361.5	2013.0
Carbohydrate	270.9 gm.	272.6 gm.
Fat	109.4 gm.	74.0 gm.
Protein	72.4 gm.	58.2 gm.
Thiamine	1.259 mg.	0.923 mg.
Riboflavin	2.178 mg.	1.587 mg.
Niacin	11.0 mg.	8.8 mg.

*Based on Tables 3, 4 and 5 of Steinkamp and her co-workers.[17]

†"Spring" represents the period from November through April, and "fall" the period from May to October. In the former period most of the histories were collected in February, March and April; in the latter most of the histories were collected in August, September and October (Kaser et al.[18]).

DISCUSSION

The analysis of Goldberger's nutritional survey data demonstrated that the annual wave of pellagra waxed when the nutrient content of the food intake was at its peak and waned when the nutrient content was still relatively low. Before a discussion of why this phenomenon may have come about, the calculations made on Goldberger's data will be compared with more recent data from the literature. Despite the large number of recent nutritional surveys, only a few have given monthly or seasonal data covering a period of a year or longer. These few studies in turn have included data only for calories and the components of the vitamin B complex.

Calculated Nutrient Content of Goldberger's Data Compared with Other Studies

The difference between the maximum and minimum daily caloric intake in Goldberger's data was about 600 calories. A similar difference was reported in active soldiers by Murlin and Hildebrandt,[15] whereas Howe and Berryman[16] found a range of 400 calories per man per day in caloric intake. Steinkamp et al.[17] observed a range of about 350 calories per day in healthy women (Table 2). Each group of investigators noted that the caloric intake was greater during the period October to March than between April and September. In the study by Murlin and Hildebrandt[15] a chart showing the monthly levels of caloric intake revealed a biphasic seasonal variation similar to that discovered in Goldberger's data.

It is interesting to note in passing that the albino rat[19] also consumes a larger number of calories in the period October–March than in the period April–September. Except for the absence of a secondary maximum, the monthly variation in caloric consumption by the albino rat is strikingly similar to that demonstrated for human beings.

A review of the literature revealed very little information on monthly changes in the consumption of protein, carbohydrate and fat. The reports of Beach et al.,[20] Cathcart, Murray and Shanks,[21, 22] Chaffee,[23] Dunshee,[24] Justice and his associates[25] and Stiebeling and Phipard[26] give only scanty data for various periods of the year. The fact that only small temporal variations in consumption were found in these studies is certainly not proof that no seasonal variation in food consumption exists.

On the other hand, rather marked variations in seasonal consumption of protein and fat have been reported by Steinkamp et al.,[17] who calculated the proximate composition of 40 one-day diet histories obtained from the same group of women, living in a Tennessee community, in the "spring" (November–April) and again in the "fall" (May–October). The data are summarized in Table 2. In the "spring" most of the histories were collected in February, March and April; in the "fall" most of the histories were collected in August, September and October.[18] These periods of the year correspond closely to our division of the year. Comparison of Table 2 with Figure 1 reveals that both Steinkamp's group and the mill-village population studied by Goldberger consumed more protein during the cataphase than

during the anaphase. In the consumption of fat, on the other hand, the similarity of trends is obscured by the biphasic swing in Goldberger's data and the time intervals used by Steinkamp. The "spring" level corresponds to the secondary winter maximum, and the "fall" level to the early autumnal minimum in Goldberger's data. The nature of Steinkamp's data makes it impossible to judge whether or not the population ate a maximal amount of fat in the summer. No variation was found in the intake of carbohydrate, but here again the biphasic character of the seasonal variation in the consumption of this nutrient was probably obscured by the intervals of time chosen by Steinkamp.

Steinkamp's data, furthermore, support our calculations on Goldberger's dietaries for monthly intake of components of the vitamin B complex. A comparison of Table 2 with Figure 3 discloses that in the consumption of niacin and thiamine the trends are similar in both groups of data. Whereas little seasonal change was found in the riboflavin content of Goldberger's dietaries, a marked change was found by Steinkamp. Thus, so far as the intake of these nutrients is concerned, the intake of thiamine, riboflavin and niacin is lower in the anaphase than in the cataphase.

(To be concluded)

References

1. Kruse, H. D. Concept of etiological complex of deficiency states with especial consideration of conditions. *Milbank Mem. Fund Quart.* **27**:5-97, 1949.
2. Fitt, A. B. *Seasonal Influence on Growth, Function and Inheritance.* 182 pp. Christchurch, New Zealand: Whitcombe & Tombs, Ltd., 1941.
3. de Rudder, B. *Grundriss einer Meteorobiologie des Menschen: Wetter- und Jahreszeiteneinflüsse.* Second edition. 234 pp. Berlin: J. Springer, 1938.
4. Goldberger, J., Wheeler, G. A., Sydenstricker, E., and King, W. I. *A Study of Endemic Pellagra in Some Cotton-Mill Villages of South Carolina.* Hygienic Laboratory Bulletin No. 153. 85 pp. Washington, D. C.: Government Printing Office, 1929.
5. Frazier, E. I., and Friedemann, T. E. Pellagra, study in human nutrition: multiple-factor principle of determination of minimum vitamin requirements. *Quart. Bull. Northwestern Univ. M. School* **20**:24-48, 1946.
6. Handler, P. Metabolic complexities of pellagra. *J. Lab. & Clin. Med.* **32**:428-436, 1947.
7. American Medical Association. *Handbook of Nutrition.* 586 pp. Chicago: the Association, 1943. P. 216.
8. National Research Council. *Nutrition Surveys: Their techniques and value.* 144 pp. Bulletin No. 117, 1949. Pp. 11-46.
9. Goldberger, J., Wheeler, G. A., and Sydenstricker, E. Study of relation of diet to pellagra incidence in seven textile-mill communities of South Carolina in 1916. *Pub. Health Rep.* **35**:648-713, 1920.
10. Spies, T. D. Natural occurrence of riboflavin deficiency in eyes of dogs. *Science* **98**:369, 1943.
11. Jolliffe, N. Conditioned malnutrition. In American Medical Association. *Handbook of Nutrition.*[2] Pp. 521-543.
12. Dann, W. J., and Darby, W. J. Appraisal of nutritional status (nutriture) in humans, with especial reference to vitamin deficiency diseases. *Physiol. Rev.* **25**:326-346, 1945.
13. Erahoff, B. H. Conditioning factors in nutritional disease. *Physiol. Rev.* **28**:107-137, 1948.
14. National Research Council. Food and Nutrition Board. *Recommended Dietary Allowances.* Revised. Reprint and Circular Series No. 129, 1948. Washington, D. C.
15. Murlin, J. R., and Hildebrandt, F. M. Average food consumption in training camps of United States Army. *Am. J. Physiol.* **49**: 531-556, 1919.
16. Howe, P. E., and Berryman, G. H. Average food consumption in training camps of United States Army (1941-1943). *Am. J. Physiol.* **144**:588-594, 1945.
17. Steinkamp, R. C., Robinson, W. D., and Kaser, M. M. Adaptation of short method of calculating nutritive content of diets in rural areas of middle Tennessee. *J. Am. Dietet. A.* **21**:522-526, 1945.
18. Kaser, M. M., Steinkamp, R. C., Robinson, W. D., Patton, E. W. and Youmans, J. B. Comparison of calculated and determined calorie and vitamin contents of mixed diets. *Am. J. Hyg.* **46**:297-325, 1947.
19. Campbell, H. L. Seasonal changes in food consumption and rate of growth of albino rat. *Am. J. Physiol.* **143**:428-433, 1945.
20. Beach, E. F., et al. Nutritional status of children. V. Blood serum protein. *J. Am. Dietet. A.* **24**:405-409, 1948.
21. Cathcart, E. F., and Murray, A. M. T. *A Study in Nutrition: An inquiry into the diet of 154 families in St. Andrews.* Medical Research Council, Special Report Series No. 151. 60 pp. London: His Majesty's Stationery Office, 1931.
22. Cathcart, E. F., Murray, A. M. T., and Shanks, M. *Studies in Nutrition. An inquiry into the diet of families in Cardiff and Reading.* Medical Research Council, Special Report Series No. 165. 28 pp. London: His Majesty's Stationery Office, 1932.
23. Chaffee, C. G. Extent of seasonal variation in food intake of primiparae. *J. Am. Dietet. A.* **23**:702-704, 1947.
24. Dunshee, M. E. Study of factors affecting amount and kind of food eaten by nursery school children. *Child Development* **2**:163-183, 1931.
25. Justice, C. L., Mattson, M. L., and Schuck, C. Some factors influencing food intake of preschool children. *J. Am. Dietet. A.* **22**: 128-133, 1946.
26. Stiebeling, H. K., and Phipard, E. F. *Diets of Families of Employed Wage Earners and Clerical Workers in Cities.* United States Department of Agriculture Circular No. 507. 141 pp. Washington, D. C.: Government Printing Office, 1939.

CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

Weekly Clinicopathological Exercises

FOUNDED BY RICHARD C. CABOT

TRACY B. MALLORY, M.D., *Editor*

BENJAMIN CASTLEMAN, M.D., *Associate Editor*

VIRGINIA W. TOWNE, *Assistant Editor*

CASE 36121

PRESENTATION OF CASE

A sixty-five-year-old Italian man entered the hospital complaining of dizziness.

Three days before admission the patient, who was known to have had diabetes for five years, experienced a sudden onset of dizziness aggravated by sudden changes of position or heavy eating.

Physical examination showed an alert, co-operative man. Examination of the lungs was negative. A Grade II to III aortic systolic murmur was present over the entire precordium and was transmitted into the neck. There was cardiac irregularity interpreted as either fibrillation or premature beats. Slight right facial weakness and a constricted right pupil were noted. There was horizontal nystagmus on right gaze. There were absent knee and ankle jerks, no plantar response on the left and hypalgesia of the left leg, with fasciculations of the calf and thigh muscles.

The temperature, pulse and respirations were normal. The blood pressure was 210 systolic, 100 diastolic.

Examination of the blood disclosed 15 gm. of hemoglobin and a white-cell count of 13,000. A urinalysis was negative. A lumbar puncture revealed a spinal-fluid pressure equivalent to 55 mm. of water with 40 red cells per cubic millimeter and a negative Pandy test on the withdrawn fluid. The gold-sol curve was 0001222111. On x-ray examination the lung fields were clear. The heart appeared enlarged chiefly in the region of the left ventricle. The aorta was tortuous. There were degenerative changes about the dorsal spine and the right shoulder. There was an old fracture of the right eighth rib posteriorly. X-ray examination of the skull showed no evidence of old fracture or of increased intracranial pressure. The sella turcica was of normal size. The pineal body was not calcified. The serum nonprotein nitrogen was 28 mg., and the sugar 124 mg. per 100 cc. and the carbon dioxide 32.1 milliequiv. per liter. An electrocardiogram revealed an abnormal tracing that was thought to be due to left ventricular strain or coronary-artery disease. The blood Hinton reaction was not reported. An electroencephalogram revealed an abnormal tracing with greater disturbance of the left than of the right cerebrum.

On the third hospital day the patient became definitely confused and did not respond well to questioning. The temperature rose to approximately 100°F. and remained irregularly elevated during most of the remainder of his hospital stay. Insulin was ordered on the basis of his urinary specimens. A urine culture revealed rare gram-negative rods, rare beta-hemolytic streptococci and rare yeast. Crysticillin was started. The leukocytosis became more pronounced, and red and white cells were found in the urinary sediment. A later specimen was loaded with white cells, and a sulfonamide was ordered. He began to show slow general improvement, but about three weeks following admission swelling and tenderness of the right calf developed. There was a rise in temperature, pulse and respirations. Homans's sign was positive on the right and absent on the left. Upon questioning, a history of slight pleuritic pain was elicited. Radiographic examination of the chest was negative. Bilateral superficial femoral-vein interruption and ligation were performed, but no clots were found. Two days later he complained of pain on swallowing, and five days later there was a slight temperature rise to 101°F., and the white-cell count was 27,000. His only complaint was pain on swallowing. Examination at this time showed slight stiffness of the neck. There was slight dullness in the right chest, and the heart was unchanged. There was questionable slight costovertebral-angle tenderness. Sulfonamide crystals were seen in the urinary sediment, and this medication was stopped. Two days later the white-cell count was 30,000. There was resistance in the right upper quadrant, the right rectus muscle was held more stiffly than the left, and there was definite tenderness just to the right of the midline below the costal margin, with a feeling of fullness in this region. The abdomen was otherwise normal. Repeated blood cultures were negative. A radiogram of the chest was again not significant. A gastrointestinal series was unsatisfactory but revealed no definite esophageal disease. No gross lesion of the stomach or duodenum was recognized. An intravenous pyelogram showed excretion of the dye promptly in diminished concentration.

About six weeks following admission the patient again became somewhat confused; the temperature rose to 101°F., and he used his right arm less than previously. On examination a localized sense of resistance, thought to be liver, was still noted beneath the right costal margin. On the following

day increasing respiratory distress and slight cyanosis were observed. The white-cell count was 22,400, with 96 per cent neutrophils. An electrocardiogram showed changes consistent with myocardial infarction. An x-ray film of the chest demonstrated mottled areas of increased density scattered throughout the entire upper-lung field on the right. The left lung and both bases were clear. There were multiple, small, rounded radiolucent areas in the right-upper-lung field and in the right apex. Two days later the left leg was found to be swollen, blotched and purple as far as the midthigh. The external iliac pulses were equal, and the femoral pulse could be traced as far as the profunda femoris arteries on both sides, and were apparently equal. The pulse in the right popliteal artery was palpable, but the left was not. No pulses were palpable in either foot.

His general condition remained about the same, though the temperature fell off slowly to normal. He was responsive though drowsy; the aphasia and right facial weakness persisted, and the neck was supple. No rub or gallop was noted on auscultation of the heart. The edema of the left leg slowly increased over the ensuing few days. He died early one morning after about seven weeks in the hospital.

Differential Diagnosis

Dr. Alfred Kranes*: Was the spinal-fluid Wassermann test ever recorded? It may be important in a patient having cerebrovascular accidents.

Dr. Benjamin Castleman: The test was done, but there is no report in the record.

Dr. Kranes: This is a long history, and it contains a good deal of information for which I am very grateful. Nevertheless, the picture I get of the patient is quite indistinct and confusing. I am hoping that those who saw this patient may be able to help me out a little on some of the details. For example, although he was obviously moribund terminally, I have no idea how sick he was during most of his stay in the hospital. Was he up and about, and did the initial neurologic findings persist or clear?

Dr. Castleman: I think they all persisted. Here is the chart if you would like to see it.

Dr. Kranes: The chart shows a low-grade fever, with a temperature intermittently up to 100 and 101°F.

One would also like to know whether the so-called fibrillation or premature beats, which were mentioned only at the beginning, were of any significance. Was he fibrillating? The report of the electrocardiogram does not mention the rhythm.

Dr. Castleman: Here is the report of the electrocardiogram.

Dr. Kranes: It shows normal rhythm, so I do not have to worry about the cardiac irregularity.

I am also a little puzzled by the statement, "On the third hospital day the patient became definitely confused and did not respond well to questioning." It is not clear to me whether he was aphasic, whether his responses were merely irrelevant, whether he was stuporous, or whether he was dysarthric.

Dr. Castleman: Dr. Balboni's note reads as follows: "The patient is definitely confused, does not know where he is, and does not answer questions." Dr. Balboni spoke to him in Italian, and his answers were in confused English.

Dr. Kranes: Did he seem to understand?

Dr. Gerardo M. Balboni: At times, but at times he did not.

Dr. Kranes: I will have to assume that he probably was aphasic, although the question whether this was simple confusion or real aphasia makes a great deal of difference.

The pain on swallowing also disturbs me. I do not know how severe it was, and whether it was in the throat or in the chest. Did it hurt him only when he swallowed?

Dr. Balboni: I do not know. I did not follow him.

Dr. Kranes: I must assume, from the statement that no esophageal lesion was found, that the pain was somewhere in the substernal area, but that certainly is not clear from the record. What about the abdominal findings? Nothing is said about any abdominal symptoms, but when the abdomen was examined, vague findings were reported.

Dr. Castleman: The note here by Dr. Rita Kelley reads "The patient tells me he has pain all the time, with vague gestures toward his right abdomen, which seems less tender than when previously seen but there is still a sense of resistance in the right upper quadrant."

Dr. Kranes: There is no mention of any neurologic findings at that time, and I cannot be sure whether the weakness of his right arm actually was a monoplegia or not.

Dr. Castleman: I think it was.

Dr. Kranes: In the terminal episode involving the left lower leg, it would be important for me to know whether there was pain with the apparent vascular occlusion.

The outstanding symptoms this patient presented were of cerebrovascular episodes, apparently three in number, possibly only two. The signs of the first one for which he entered the hospital are somewhat characteristic, although not absolutely typical, of an occlusion of the right posteroinferior cerebellar artery — hemianesthesia on one side of the body, and cerebellar signs and a constricted pupil on the other. The unusual feature is the right-sided facial paralysis, which is not a part of that syndrome. Rather, he should have had an anesthesia on the right side of the face. However, cerebral vessels take anomalous courses, and it is possible that the facial nucleus was involved. Despite this finding I would be inclined to believe that he did have an occlusion of the right posteroinferior cerebellar artery. I say vascular occlusion, although I sup-

*Associate physician, Massachusetts General Hospital.

pose it is quite possible that this patient had a brain tumor. However, I do not see much evidence in favor of a brain tumor. There was no increased spinal-fluid pressure. The lesions were multiple in nature (the first on the right, and the subsequent one on the left), and that would argue very much in favor of vascular lesions. Furthermore, if he had a tumor, I think it highly likely — although one is not supposed to use this type of reasoning here — that this case would have been given to a neurologist to discuss. The second and third episodes involved branches of the middle cerebral artery.

The dysphagia was a significant symptom, and I rather suspect that it was part of a medullary syndrome. The difficulty in swallowing was probably due to interference with the innervation of the esophagus rather than to a local lesion. Whether this was a true bulbar paralysis or a pseudobulbar paralysis I do not see how we can say from the record. Nothing was said about the innervation of the palate, the tongue or the lips so that one has to use more or less indirect evidence. I do not know how to interpret the abdominal findings because they were not clear-cut enough for me to make any sort of diagnosis.

May we see the x-ray films?

DR. JOSEPH HANELIN: Films of the skull made at the time of admission, appear to be entirely normal. The pituitary fossa is normal. The pineal body is not calcified and there is no abnormal intracranial calcium seen. We have films of the chest made on three occasions. They look the same on two of the examinations. The lung fields are grossly clear. The enlargement of the left ventricle and the somewhat tortuous and sclerotic aorta should be noted. There are proliferative changes of the spine and an old fracture of the right eighth rib.

Six weeks after admission a chest film done at the bedside with the portable machine shows irregular density in the right-upper-lung field. This has the appearance of an acute pneumonic process. Whether this represents septic infarction is rather difficult to say. The changes could result from pneumonia. The examination of the upper gastrointestinal tract is essentially negative. There is some question of hepatic enlargement. The kidneys are not too well outlined. Pyelograms are normal except for evidence of diminished renal function bilaterally.

DR. KRANES: Do you think the liver is normal? I never thought about the liver.

DR. HANELIN: The liver may be enlarged.

DR. KRANES: Was there any cough or pain at the time the patient had this x-ray process in the lung?

DR. CASTLEMAN: I do not believe there was.

DR. KRANES: Why were x-ray examinations of the chest performed so many times?

DR. CASTLEMAN: Because of the phlebitis — I think they were looking for infarcts.

DR. KRANES: As far as the terminal episode is concerned, I cannot be sure from the record whether it was an arterial or a venous occlusion. There is just not enough information for me to make a positive diagnosis, although I suspect that it probably was arterial since the pulse could be felt down to a certain area and then, somewhere in the region of the profunda, was obliterated. However, a severe thrombophlebitis could also do this. The presence of so much edema discourages me from making a diagnosis of arterial occlusion, but since it fits in with the rest of the picture, I am going to accept it as such.

How can we put all these findings together? Diabetes? There is a statement in the record that the patient had diabetes, although there is nothing to confirm it. Diabetes will cause widespread vascular disease resulting in multiple thrombosis, but it seems like stretching that possibility rather far to assume that in a seven-week period this man had four spontaneous thromboses. It seems so improbable that I shall dismiss it.

There is a much more likely explanation — namely, that these vascular occlusions represent emboli. If they do, the most likely source for emboli is, of course, the heart. Since he was not fibrillating, we need to consider seriously only two types of heart disease as causes for multiple emboli: myocardial infarction and subacute bacterial endocarditis. It is quite possible that he had a myocardial infarction. The second electrocardiogram apparently suggested it, but there is little in the history to confirm it. I am inclined to believe that, of the two, the more likely diagnosis is bacterial endocarditis. That disease is often atypical in older people. This patient lacked many signs of the disease, — clubbing, petechiae and palpable spleen, — but certainly, the multiple cerebral occlusions, the low-grade fever and the presence of cardiac murmurs are consistent with this diagnosis. It is very disturbing to find out, however, that no positive blood cultures were found. I do not know how many were done, but we all have encountered cases of proved bacterial endocarditis in which repeated blood cultures have failed to reveal any organisms.

How about the curious x-ray change in the lungs? Would that fit in with this picture? I am not certain. Does it look like an infarct to you, Dr. Hanelin?

DR. HANELIN: It is not typical of infarction. We should have two views to show it. It could be a large infarction of the lung. I have seen it involve an entire lobe.

DR. KRANES: I wonder if it might not be related to the difficulty in swallowing, and might it not be an aspiration pneumonia with multiple small abscesses? The swallowing episode is not very clearly described, but if the patient had a bulbar syndrome, aspiration pneumonia might readily result. It is

more likely to occur in the lower lobe, however. There is one other type of cardiac abnormality that ought to be mentioned. One always mentions it, but I do not believe I have ever seen it — a patent foramen ovale with paradoxical emboli from the phlebitis. The phlebitis may have been present before admission, although signs did not become apparent until later. Because of its infrequency, this is highly unlikely. Other rarer causes for this picture must, I suppose, be mentioned, but since the time is so short I will merely enumerate them without discussion — periarteritis nodosa, metastatic cancer and a few types of rare infections.

The most likely diagnosis in my opinion is bacterial endocarditis, with multiple areas of softening in the brain and an embolus to the leg. Possibly, there was a mesenteric thrombosis to account for the abdominal symptoms. The disease in the lung may represent an aspiration pneumonia.

Clinical Diagnosis

Cerebral thrombosis.
Myocardial infarct.

Dr. Kranes's Diagnoses

Subacute bacterial endocarditis.
Cerebral infarcts, multiple.
Arterial embolus of leg.
Mesenteric embolism?
Aspiration pneumonia.

Anatomical Diagnoses

Subacute bacterial endocarditis, mitral valve, with embolism and infarction of brain, heart, kidney and spleen.
Carcinoma of pancreas, with liver metastases.
Thrombosis of deep femoral, common femoral and common iliac veins.
Pulmonary emboli, terminal vessels.
Rheumatic endocarditis, old, mitral and aortic.
Cardiac hypertrophy.

Pathological Discussion

Dr. Castleman: I might ask Dr. Richardson to tell us about the cerebral findings first.

Dr. E. Pearson Richardson, Jr.: There were several vascular occlusions, with lesions in the brain typical of infarction. The first was a thrombosis of the right vertebral artery obstructing the posterior inferior cerebellar artery. There was very little infarction in the brain stem, but there was some — a small lesion in the right lateral aspect of the medulla oblongata. There were also some small infarcts in the right cerebellar hemisphere. These lesions almost certainly gave rise to the vertigo with which the patient initially was afflicted. I do not know how the infarction that was seen in the brain stem could have produced the facial weakness, but it, with the involvement of the cerebellum, could have produced the nystagmus, and since the lesion in the medulla occupied the region of the lateral spinothalamic tract, it seems most likely that it caused the hypalgesia in the left leg.

In the forebrain, there were occlusions — apparently emboli — in the large branches of the left middle cerebral artery with extensive infarction in the left cerebral hemisphere in the distribution of those branches. Similar but somewhat less extensive lesions were found in the left occipital and right parietal regions. The lesion in the left frontoparietal region could well have caused the aphasia and weakness of the right arm that appeared a few days before the patient died. The other cerebral lesions must have occurred at about the same time or a little later, judging from their appearance. They were all much more recent than the infarction in the brain stem and cerebellum.

Dr. Castleman: These cerebral occlusions turned out to be emboli from the heart. The heart was slightly enlarged, weighing 490 gm., and involving the whole anterior portion of the left ventricle was an 8-cm. area of recent infarction. Although there was a mural thrombus overlying the myocardial infarct, I believe the source of the emboli was a subacute bacterial endocarditis involving the mitral valve. There was a slight shortening of the chordae tendineae of the mitral valve — evidence that the patient had old rheumatic infection. I think the myocardial infarction was also on an embolic basis. The left leg showed thrombosis of the deep femoral vein extending up the common femoral and into the common iliac vein. Apparently, this was one of the rare cases in which thrombosis of the deep femoral vein developed after the superficial femoral vein had been ligated. An incidental finding that occasionally is associated with multiple venous thrombosis was a large cancer of the pancreas involving the body and tail. This had metastasized to the liver and accounted for the hepatomegaly. The abdominal pain may well have been due to the metastases to the liver. In addition, there were infarcts in both kidneys, and it is quite possible that the infarct on the right produced some of the pain.

A Physician: Were there any emboli to the lungs?

Dr. Castleman: There were small emboli in the very small branches of the lungs, but they had not given rise to any infarction.

CASE 36122

Presentation of Case

A forty-eight-year-old man entered the hospital complaining of jaundice of three days' duration.

Three weeks before admission he noted a dull, persistent ache in the right upper quadrant. One week before admission he began to have anorexia and a decrease in the number of bowel movements, but no nausea or vomiting. The same day, while he

was lifting a 65-pound weight, there was a sudden sharp pain in the right calf, which forced him to stop work. This subsided with heat treatments, but four days before admission he developed a persistent dull pain in the low back. He also noticed excessive perspiration, abdominal distention and mild jaundice. He consulted a physician, who found a greatly enlarged liver and advised hospital study.

For nine years prior to admission the patient had had a consumption of alcohol estimated at three cases of beer a week. His appetite was good, and he did heavy labor in a textile mill.

Physical examination showed a markedly obese, mildly jaundiced, perspiring man with cold, clammy extremities who seemed acutely ill. Spider angiomas were noted over the chest and back, and there was some gynecomastia, although the obesity may have exaggerated this finding. The heart was not enlarged. There was normal sinus rhythm, with a short apical systolic murmur. The right chest was dull to percussion, with decreased voice and breath sounds. The abdomen was protuberant, with a hard liver palpable in the flank, shifting dullness and a fluid wave.

The temperature was 99°F., the pulse 120, and the respirations 25. The blood pressure was 140 systolic, 110 diastolic.

The urine had a pH of 4.5 and contained bile. Examination of the blood revealed a hemoglobin of 24.0 and 20.5 gm. on two determinations, a red-cell count of 7,200,000 and a white-cell count of 25,100, with 71 per cent neutrophils, 17 per cent band forms, 9 per cent lymphocytes and 3 per cent monocytes. A stool specimen was guaiac positive. The nonprotein nitrogen was 98 mg., the fasting blood sugar 63 mg., the cholesterol 460 mg. and the total protein 6.0 gm. per 100 cc., with an albumin-globulin ratio of 3.27:2.73. The sodium was 120 milliequiv., and the chloride 84 milliequiv. per liter. The alkaline phosphatase was 21.3 units per 100 cc., the cephalin-flocculation test +++ in twenty-four and forty-eight hours, the prothrombin time 15 per cent of normal and the van den Bergh reaction 18.4 units per 100 cc. direct, 23.0 units indirect.

On the morning after admission the patient was noted to be dyspneic, weak and restless. The heart rate was 90 with a normal sinus rhythm; the blood pressure was not obtainable. A few basal rales were heard bilaterally. Because the patient complained of urinary urgency with inability to void he was catheterized, but only 20 cc. of bile-stained urine was obtained. Four units of plasma were administered intravenously, but the patient failed to respond and died on the second hospital day.

Differential Diagnosis

Dr. Thomas A. Warthin*: I would feel a little more certain of my ground if I had more information. May I ask if the patient was Jewish?

Dr. Tracy B. Mallory: No; he was not.

Dr. Warthin: Was a serologic test for syphilis performed?

Dr. Mallory: No; he was not in the hospital long enough.

Dr. Warthin: Are there any x-ray films?

Dr. Stanley M. Wyman: No.

Dr. Warthin: We have a forty-eight-year-old man who had had a persistent upper abdominal ache of three weeks' duration. The prominent findings were the polycythemia, enlarged liver, jaundice and very rapid death.

The first point to be determined was whether this was a true polycythemia or a relative erythrocytosis due to some other condition. I think that we can rule out erythrocytosis secondary to congenital heart disease by the lack of a previous history of any cardiac difficulty and the relatively minor cardiac findings here. The same statement is true of acquired heart disease with mitral stenosis. There was no evidence of chronic pulmonary difficulty. He had worked hard in a textile mill. We have no evidence that he had any pulmonary-artery disease from other causes. High-altitude polycythemia is of necessity ruled out. Did he have a relative polycythemia due to dehydration? It is interesting that he had not vomited and had had no diarrhea. The only possible mechanism for the loss of an abnormal amount of fluid or plasma was the excessive perspiration. For excessive perspiration alone to produce the findings here would be most unusual. Furthermore, when he came into the hospital, he was still perspiring, although in borderline shock, certainly.

Could he have had a polycythemia due to chemical agents? There are an increasing number of coal-tar derivatives, gum shellac and various metals, especially cobalt, that may produce this hematologic picture. Knowing as little as we do about the chemical exposures he had in the textile mill, I am inclined to rule them out. There are various miscellaneous causes of polycythemia, such as Cushing's disease. We notice in the protocol that he was obese and that he had hypertension. On the other hand a number of things are lacking. He had a low fasting blood sugar, and there is no notation of abnormal skin on the legs, moon face or buffalo trunk. I will rule out Cushing's disease as a possible cause of the polycythemia.

If one looks back in the older literature, one finds references to polycythemia in association with a large number of conditions — thrombophlebitis of the portal veins, tuberculosis of the spleen, syphilis

*Assistant in medicine, Massachusetts General Hospital; chief, Medical Service, West Roxbury Veterans Administration Hospital.

and many other causes, which I do not believe present-day concepts of what is cart and what is horse would bear out. At least the vascular diseases were probably secondary to the polycythemia and not primary. I thought if he had been Jewish that that would be further confirmatory evidence of polycythemia vera since the incidence is very high in that race. However, he was a man and was at the proper age, about fifty. The hemoglobin was at least over 20 gm. I take it that the second determination was made after he had received 4 units of plasma. He had a typical polycythemia white-cell count with a polymorphonuclear leukocytosis and a shift to the right, with the 17 per cent band forms. If there had been 1 normoblast or 2 metamyelocytes, it would make me feel a little more certain. He was, of course, too sick to have a blood-volume determination, which would be of great value in deciding between a relative polycythemia and a polycythemia vera. Obesity is frequently reported in polycythemia vera. Osler's original examples of the disease were all in obese people. I will therefore proceed on the assumption that this man had polycythemia vera. As we all know, one of the commonest complications — in fact, one reason why many patients with the disease present themselves to the doctor — consists of the symptoms of vascular thrombosis. This man had pain in the leg following a strain. Even prior to this, he had noticed a dull ache in the right upper quadrant, and as that increased, jaundice appeared and he developed an enlarged liver.

Abdominal vascular complications of polycythemia frequently occur — namely, thrombosis of the caval, splenic, portal or hepatic veins and cirrhosis of the liver. An article by Sohval[1] in 1938 describes these conditions very well.

Could he have had some femoral-vein thrombosis, with extension into the vena cava? We have no evidence of marked edema. One might have expected hematuria if the renal veins had been thrombosed. There is no evidence of collateral circulation, which usually occurs in that condition. I do not believe that thrombosis of the inferior vena cava was present.

Could he have had thrombosis of the splenic or portal vein as a cause of the large liver, ascites and jaundice? We do not know whether or not the spleen was enlarged, but he had ascites, which makes examination difficult to perform. The spleen should have been enlarged in a true polycythemia. I am unhappy in this respect. He certainly had a large liver, which is unusual in portal-vein or splenic-vein thrombosis. He had marked jaundice, which may occur. Splenic involvement causes pain in the left upper quadrant. The course was more malignant than one usually finds in portal-vein or splenic-vein thrombosis unless there was extension into the mesenteric vessels, which could result in the prompt death. If we had more information about the terminal abdominal findings, I would be willing to consider this a possibility, but no mention is made of a surgical type of abdomen with paralytic ileus and spasm, and the fact that he had a single guaiac-positive stool is not enough to swing me to that diagnosis. Finally, a word about hepatic-vein thrombosis (Chiari's syndrome). A few years ago Altschule and White[2] discussed a case of hepatic-vein thrombosis and polycythemia vera that contained many features similar to those in the case under discussion: a large liver, ascites, right-upper-quadrant pain, jaundice and hydrothorax. I am very tempted to feel that that was the diagnosis in this patient.

What are the other possibilities that we should rule out? Could it have been an acute hepatitis? The very large liver in acute hepatitis going on to death alone, I think, would rule that out — hepatitis that results in death in three weeks is almost invariably associated with a normal-sized or small liver, instead of the large, hard one that this patient had.

Could he have had acute pancreatitis? The pain does not suggest it in any way, nor were the other findings of pain in the back, diarrhea or vomiting present. I do not believe he had pancreatitis.

Could he have had a constrictive pericarditis, and could the symptoms have been due to a high-venous-pressure phenomenon? We have no suggestion of increased venous pressure elsewhere, and no distended neck veins.

Could he have had a primary liver tumor secondary to cirrhosis, invading the hepatic vein and producing a hepatic-vein thrombosis? That is a good possibility, I think, because he unquestionably had cirrhosis in addition to the polycythemia and probably thrombosis of the hepatic vein. He had been a heavy drinker. Forty per cent of all patients with polycythemia have cirrhosis of the liver; it may be of the atrophic or hypertrophic types. I would like to have a greatly enlarged liver here to explain the blood chemical findings — the cholesterol of 460 mg., the alkaline phosphatase of 21.3 units per 100 cc. and the high direct van den Bergh reaction all require at least some intrahepatic biliary obstruction.

What other things might have contributed to the terminal picture? He was oliguric; I think that one might reasonably suspect that, in view of the jaundice, he had a terminal hepatorenal syndrome as well.

In conclusion, therefore, I think that he had true polycythemia. In addition he had a long-standing cirrhosis of not too great severity that was of the hypertrophic type with some intrahepatic biliary obstruction, and he probably had thrombosis of the hepatic vein of the acute Chiari type.

Dr. Jacob Lerman: On the medical service the patient was quite a problem. We believed that he had Laënnec's cirrhosis as the most likely explanation for the jaundice and the large liver. Obviously,

this could not explain the entire picture. We could not account for the high red-cell count. Although he was dehydrated it was not sufficient to explain the polycythemia. It was suggested that portal-vein thrombosis as a complication of polycythemia might account for the liver part of the picture; also, hepatoma complicating cirrhosis was considered. Our fourth-year student, Miss Davis, suggested the possibility of a malignant lesion of the gastrointestinal tract to explain all the findings except polycythemia. On the second hospital day the patient suddenly went into shock for unknown reasons; the blood pressure was unobtainable, and the pulse rapid. He was given plasma, and died soon afterward.

Clinical Diagnoses

Laënnec's cirrhosis.
Cholemia.
Hepatoma?
Portal-vein thrombosis?

Dr. Warthin's Diagnoses

Polycythemia vera.
Hypertrophic cirrhosis of liver.
Thrombosis of hepatic vein.

Anatomical Diagnoses

Carcinoma of lung, oat-cell type, left upper lobe, with metastases to liver, lumbar vertebras, and bronchial, lower esophageal and upper abdominal lymph nodes, with occlusion of common bile duct.
Pulmonary hemorrhage, severe.
Ascites.
Jaundice.

Pathological Discussion

Dr. Mallory: The anatomical findings in this case came as a total surprise. This man died of cancer of the lung. He had a typical bronchiogenic carcinoma of the oat-cell type. The immediate cause of death was hemorrhage from the tumor and aspiration of large quantities of blood throughout the pulmonary parenchyma. The liver was totally replaced by carcinoma. There was so little left that we could not possibly say whether he did or did not have an underlying cirrhosis. I think he probably did not. The spleen was normal in size, which is unusual in polycythemia vera of some severity as this seemed to have been, and where he was forming his red cells I do not know because all sections of bone marrow that we cut showed complete replacement of the marrow by tumor cells. There was no evidence of hematopoiesis in the spleen. He should have had anemia and not a polycythemia so that I am totally at a loss to explain any of the clinical findings except the large liver.

Dr. Helen S. Pittman: Are you sure it was the right patient?

Dr. Mallory: I questioned that myself but I can assure you that it was.

Dr. Irad B. Hardy: Did he have any damage of the adrenal glands?

Dr. Mallory: No, they were normal.

Dr. Warthin: I think in retrospect that since the liver was so enlarged, the high alkaline phosphatase and jaundice were two things that should have made me suspicious of something other than the conditions mentioned in my discussion.

Dr. Mallory: I think there is no possible way in which the diagnosis could have been anticipated.

References

1. Sohval, A. R. Hepatic complications in polycythaemia vera, with particular reference to thrombosis of hepatic and portal veins and hepatic cirrhosis. *Arch. Int. Med.* 62:925-945, 1938.
2. Altschule, M. D., and White, G. Chiari's syndrome in patient with polycythemia vera: report of case. *New Eng. J. Med.* 220:1030-1033, 1939.

MASSACHUSETTS MEDICAL SOCIETY

PROCEEDINGS OF THE COUNCIL

Stated Meeting, February 1, 1950

A STATED meeting of the Council was called to order by the President, Dr. Arthur W. Allen, on Wednesday, February 1, 1950, at 10 a.m. in the auditorium of the Boston Conservatory of Music, 31 Hemenway Street, Boston.

Two hundred and fifty-six councilors were present (Appendix No. 1).

The Secretary, Dr. H. Quimby Gallupe, presented the minutes of the Council meeting of October 5, 1949, as printed in the *New England Journal of Medicine*, issue of December 8, 1949, and moved their acceptance. The motion was seconded, and it was so voted.

The President then read the following obituary:

ROBERT L. MASON. Dr. Robert L. Mason was born in Creston, Iowa, on November 2, 1896, and attended school there. He entered Lake Forest College in the fall of 1914 and graduated in 1918. He studied medicine at Harvard Medical School from 1918 to 1922, graduating in June, 1922. After two years as surgical intern at the Massachusetts General Hospital (1922 to 1924), he became associated with the Lahey Clinic, with which he was affiliated until 1931. From 1931 to the beginning of the war he was in practice in and around Boston. During this period he was surgeon-in-chief at the Hudson Hospital, the Ayer Hospital and the Marlborough Hospital. He had a keen interest in bettering the medical standards in these communities and was largely instrumental in introducing new equipment and technics to these hospitals, to their very great benefit. He was a diplomate of the American Board of Surgery and a fellow of the American College of Surgeons.

He entered the Army Medical Corps early in 1942 as a major, retiring in 1946 as a full colonel. While he was in the Army he was at one time surgeon-in-chief at Cushing General Hospital and later surgeon-in-chief at the Indian Town Gap Military Reservation, in Pennsylvania. On leaving the Army, he was briefly associated with the American Cancer Institute and the Veterans Administration, resuming private practice in Boston in 1948.

He was the author of numerous papers and three books, *Pre-operative Surgical Treatment* and *Post-operative Surgical Treatment* (published in 1937 and revised and republished in 1946) and a handbook on cancer treatment, published by the American Cancer Society in 1947. He was a member of numerous medical societies and a member of the editorial staff of the *Norfolk Medical News*.

He died suddenly on September 21, 1949.

At the request of the President, the Council stood in silent tribute to the departed fellow.

The President then announced the following interim appointments, which were approved by the Council:

Dr. Henry W. Hudson, Jr., as councilor from Middlesex South, to replace Dr. Sylvester B. Kelley, resigned.

Dr. Allen W. Locke, as councilor from Norfolk, to replace Dr. Rober L. Mason, deceased.

Subcommittee on Arthritis and Rheumatism:
Theodore B. Bayles, *Chairman*
Charles E. Ayers
Franklin K. Paddock
Laurence D. Chapin
Charles L. Short
Henry D. Stebbins

REPORTS OF COMMITTEES

Executive Committee — Dr. H. Quimby Gallupe, Middlesex South, *Secretary*.

The Secretary submitted the report of the Committee (Appendix No. 2), which met on January 4, 1950, at the Harvard Club at 1:00 p.m. No business had been referred to the Committee by the Council. Under new business, the Secretary spoke of the American Medical Association dues of $25 for 1950 and mentioned that the Association had instructed the Society to collect the dues by the method of its choice. He said the office would mail bills for these dues early in March and explained that these dues are compulsory and if not paid by the end of January, 1951, will result in deprivation of membership in the American Medical Association. Nonpayment will have no effect on membership in the Society. The Secretary stated that only 61.5 per cent of the members had paid the 1949 assessment, which left the Society in the forty-fourth place among the states in this respect.

The Secretary said he had been requested to read the law governing the licensing of physicians in the town or city where they practice (Appendix No. 3).

The Secretary said that the Committee approved formation of a new committee to correlate the work of the Committee on Society Headquarters and the Committee on Postgraduate Medical Education, and moved similar approval by the Council. The motion was seconded, and it was so voted.

The President then named the following committee, which was approved by the Council: Leland S. McKittrick, *Chairman*; Leroy E. Parkins, *Secretary*; Albert A. Hornor; Joseph S. Barr; W. Richard Ohler; and Richard P. Stetson.

The Secretary said that the Executive Committee approved the formation of a new committee to meet with the Massachusetts State Pharmaceutical Association and moved that the Council approve this action.

The motion was seconded, and it was so voted.

The President then named the following committee, which was approved by the Council: Frank N. Allan, *Chairman*; Charles L. Brennan; and George L. Maison.

The Secretary reported that the committee had approved the formation of a new committee to meet with the Massachusetts Society of Funeral Directors and Embalmers to straighten out problems concerning autopsies, and moved approval of this action by the Council. The motion was seconded, and it

was voted. The President said that he had not named the committee as yet.

At this point, the President asked that the Council consider the committee reports in a changed order.*

Subcommittee of the Executive Committee on Blue Cross–Blue Shield Problems — Dr. Charles J. E. Kickham, Norfolk, *Chairman*.

Dr. Kickham presented the report (Appendix No. 4) as a joint report with the Committee on Fees. He said the report was essentially informational and moved that the Council approve the recommendation that in Blue Shield groups where at least 75 per cent of the members in the limited (over-income) category participate, a new "service benefit" category be established with an upper income limit through $5000 per annum. The motion was seconded.

Dr. Charles G. Hayden, Middlesex South, spoke as follows:

> I should like to review very briefly what has transpired since this proposal was made by the Central Professional Committee of the Blue Shield Board of Directors on November 30 and then by the Board of Directors of Blue Shield on the evening of November 30. Immediately upon the passage of this proposal by the Board of Directors, the Executive Committee on the Council was put on thirty days' notice. This was in accordance with the Blue Shield by-laws, which state that no change can be made in the medical aspects of the Blue Shield program until the Executive Committee has been put on thirty days' notice.
>
> That was done. As you all know from the *Circular of Advance Information*, the Executive Committee met and considered this proposal at its regular meeting. There was another special meeting of the Executive Committee of the Council, and in each meeting, they were convened as the voting members of Blue Shield. That special meeting was held on January 25.
>
> At that meeting of the voting members of Blue Shield, or the Executive Committee of the Council, some of the details of this program were resolved to the satisfaction of everyone present and Dr. Fallon, as I recall, suggested that the Executive Director of Blue Shield, that is, myself, prepare a summary of the reasons why the Blue Shield Board of Directors felt that this step was necessary.

Dr. Hayden read the material found in Appendix No. 5.

Dr. John F. Conlin, Suffolk, spoke in favor of the program, ending his discussion as follows: "It seems to me logical, if we accept the basic principle of prepayment voluntary budget basis insurance, with a local extension of that principle in view of the rising incomes and the equivalent value of the $5000 income today and the $3000 income some years back, to follow our initial decision to underwrite the expenses of that group as completely as possible."

Dr. James P. O'Hare, Suffolk, spoke against the program because he believed that there had not been time enough for adequate study and that it had not been presented to every fellow of the Society. He objected, too, because it placed about 90 per cent of the population under insurance probably forever, and because the plan would destroy utterly the present type of practice of medicine.

Dr. Maurice Fremont-Smith, Suffolk, spoke as follows:

> I am very much in favor of passing this recommendation of the Blue Shield and passing it now. I do not want to have the public say that the Council of the Massachusetts Medical Society has refused to insure a group of people who are just as applicable for insurance now as the group we did insure in 1942 — in other words, that we are going back on the proposition that we made to the people ten years ago.

Dr. Donald Munro, Suffolk, supported Dr. Fremont-Smith.

The President then spoke as follows: "I would like to call the attention of the councilors to the fact that the Executive Committee spent three hours discussing this problem at their first meeting, and had to abandon it, finally, to get the other business done, and they had to come back for a special session on January 25, when the question was discussed for another two hours before the Executive Committee could come to an agreement actually to recommend this vote of the Executive Committee." Dr. C. J. E. Kickham stated that many meetings had been held during six weeks and that decision should not be postponed.

Dr. James C. McCann, Worcester, spoke at length, concluding as follows:

> I am sure that all of you are acquainted with enough shrewd, capable, intelligent minds in good position in American life who directly question us on what grounds and by what right we determine that they shall pay a private income tax imposed by us. We do not accept that. We believe there is a validity in our sliding scale of fees, but we are 125,000 to 140,000 people in a nation of 150,000,000 people, and if that 150,000,000 people simply decide that we are not going to be privileged at our own individual discretion to determine the degree and amount of variation, I don't think we, a small handful of people, are going to have much to say about it. I think we have to decide whether we modify some of these prerogatives, if, through our proper representatives, we evolve a program in keeping with the spirit of the over-all change in America that we cannot stop, and do justice to ourselves.

Dr. Albert A. Hornor, Suffolk, was opposed to the plan. Dr. Charles C. Lund, Suffolk, and Dr. John Curley, Worcester North, spoke in favor of the program. The President called for a vote, and the motion was passed.

Dr. Kickham then moved acceptance of the report as a whole. The motion was seconded, and it was so voted.

Committee on Public Relations — Dr. Harold R. Kurth, Essex North, *Secretary*.

Dr. Kurth submitted the report as printed (Appendix No. 6) as informational and moved its acceptance. The motion was seconded, and it was so voted.

Committee on Tax-Supported Medical Care — Dr. Albert A. Hornor, Suffolk, *Chairman*.

Dr. Hornor submitted the report as printed (Appendix No. 7) as informational and moved its ac-

*The reports here are printed in the usual order.

ceptance. The motion was seconded, and it was so voted.

Committee on Legislation — Dr. David L. Belding, Norfolk South, *Chairman.*

Dr. Belding submitted the report as printed (Appendix No. 8) as informational and moved its acceptance. The motion was seconded, and it was so voted.

Subcommittee on National Legislation — Dr. Charles G. Hayden, Middlesex South, *Chairman.*

Dr. Hayden submitted the report as printed (Appendix No. 9) as informational and moved its acceptance. The motion was seconded, and it was so voted.

Standing Committees

Committee on Publications — Dr. Richard M. Smith, Suffolk, *Chairman.*

Dr. Smith presented the report as printed (Appendix No. 10) and noted that the Committee had made a suggestion that the history of the Society be brought up to date. He moved that the committee be permitted to proceed with the preparation of the history. The motion was seconded, and it was so voted. Dr. Smith moved the acceptance of the report. The motion was seconded, and it was so voted.

Committee on Membership — Dr. Lewis S. Pilcher, Middlesex South, *Chairman.*

Dr. Pilcher presented his report as printed (Appendix No. 11). He noted one recommendation of the Committee that the by-laws be changed in Chapter 5, Section 2a, outlining requirements to read: "legal residence *or place of practice.*" He spoke as follows:

> This brings up a problem that is largely administrative, but all of you will recognize it as being present. That section has to do with the presentation of applications for membership only from the district in which the applicant has his legal residence. In other words, if an applicant practices in Suffolk District but lives in Middlesex South, he must apply to the Society through Middlesex South District. Then, if he wishes to attend meetings and keep up his medical contacts with the doctors with whom he is practicing in Suffolk, he may, after he is in the Society, request transfer to Suffolk. Obviously, this is a very confusing situation. If we approve of the fact that an applicant should belong to the society of the district in which he practices, why should we require him to apply only through the district in which he resides? If we do not approve of the fact that he should belong to the district society in which he has his place of practice, then why do we allow him to transfer over the minute he is in the Society?
>
> It makes a great deal of extra bookkeeping and is a very illogical method, because the applicant's neighbors may not know very much about him in the first place, or they may not have much interest in whether he belongs to the district society or not and the matter of application is just a formality. When this by-law was first passed a long, long time ago, almost every doctor had his place of practice at the place he resided. So now we believe that it is high time that this by-law was changed, to give the doctor the privilege of deciding whether he wanted to belong to the district society and keep his medical contacts with the men in that society in the place where he is practicing or whether he wanted to belong to the district and keep his medical contacts with the men in the town where he is residing.

Dr. Pilcher then made a motion that the Council approve the amendment to the by-laws. The motion was seconded.

Dr. Harrison (Norfolk) stated that he failed to see any advantage in the proposed method. Dr. Barton (Norfolk) said that the legal residence made it easier to reach the applicant or member since some physicians have two or more offices. The President called for a vote by a show of hands, and declared the motion carried.

Dr. Pilcher then spoke as follows concerning the change in policy regarding registered osteopaths who had acquired M.D. degrees:

> We have accepted 15 or 20 or 30 osteopaths as members of the Society in the past, but four or five years ago, the Committee on Membership made a ruling — this has nothing to do with the by-laws of the Society — that a statement be added to the application blanks that went out to the district societies that applications would not be accepted from anyone who is registered as an osteopath. That was a matter of policy with the Committee, which stated it to the district societies so they would not put those applications through.
>
> The present Committee on Membership believes that there may be an occasional man who was at one time registered as an osteopath who may later have obtained his medical degree and taken up the practice of medicine. If there is such a man, he should be given the privilege of applying for membership and letting us review his qualifications. We have no intention of accepting anybody we are not satisfied is going to be a good member of the Society and one who belongs in it. So all we are doing is changing our policy, which before was not even to consider anybody who had ever been registered as an osteopath, and now we are saying to the district societies that we will consider them.

Dr. Pilcher moved acceptance of the report. The motion was seconded, and it was so voted.

Committee on Public Health — Dr. Roy J. Ward, Worcester, *Chairman.*

Dr. Ward presented the report as printed (Appendix No. 12). He moved that the recommendation to have a subcommittee appointed to aid the various groups interested in utilizing the findings of the survey of Health Services for Massachusetts Children be approved by the Council. The motion was seconded, and it was so voted.

President Allen then made the following appointments to the subcommittee: Dr. James M. Baty, *Chairman*; Dr. Merritt B. Low; Dr. Ralph A. Ross; Dr. George W. Starbuck; and Dr. Lendon Snedeker. It was moved to approve these appointments. The motion was seconded, and it was so voted.

Dr. Ward moved approval of the report as a whole. The motion was seconded, and it was so voted.

Subcommittee on Pilot Clinics — Dr. John J. Poutas, *Chairman.*

Dr. Claire Ryder presented the report as printed (Appendix No. 13) as informational. Dr. Hayden moved that the report be accepted. The motion was seconded.

Dr. Dame said that he was convinced of the value of the Clinic, that it followed an American Medical Association recommendation, and that it had followed the principles brought forward by Dr. Getting at the annual meeting of the Society last year. He hoped that the Council would receive a detailed report of the operation of the clinic. Dr. Getting made the following statement:

> The finances of the Pilot Clinic are derived at the present time from the Massachusetts Cancer Society, $1200; a promise of $1200 from the Massachusetts Heart Association; $15,000 research grant from the Public Health Service; and the rest from either state or federal appropriations made available to the Department of Public Health.
>
> The total cost of this clinic for the six months, not including the follow-up examination, is about $35,000. We cannot give a more accurate figure, because we are now putting on an additional social worker who is going to do a great deal of follow-up study.
>
> It is my intent, at the invitation of the Committee on Arrangements, to give a preliminary report at the May meeting, in which Dr. Ryder, the director of the project, will collaborate. As soon as we get the data, they will be reported, and I hope that the Editor will see that it is published in the *Journal*. The moneys are only available through June. The criticisms that I have been receiving in the State House about this clinic are somewhat as follows, and I think you ought to know them:
>
> The Department has been accused by several scientific writers in newspapers of acting as an agent for the medical profession in that we are doing nothing more than guiding people into the doctors' offices so that the doctors could raise their incomes. Well, if we do that, we do it in a laudable way and a perfectly proper way, and I think it is one of the objectives of the clinic that we should guide people who need medical care into the doctors' offices. Another criticism has been that there is not enough of this service available in accordance with the number of persons who have applied. As a result of one newspaper release, we had not 2000 but something like 3000 requests for appointments. And it is something that the public considers extremely worth while.
>
> I have been criticized by state officials because I have given the Society an opportunity to get a great deal of credit and the Department of Public Health to remain in the background. I am perfectly willing to continue to do so except that I may be told that if the Medical Society is not going to put any money into this, how can they be partners? I am prepared to discuss with the officers of the Society the continued Pilot Clinic and its operation. I am submitting to the Governor a supplemental budget, which will go in some time within a week or ten days, in which I will ask enough State funds to run this clinic for another year.
>
> So far as our statistics can tell us, we shall not have the complete answer regarding the value or the lack of value in a clinic of this type for at least another year. So this is still a research project, and if we can run one or more clinics, it will be entirely dependent on how much money can be raised from other sources than the Department of Public Health.

Dr. Earle M. Chapman said he hoped the Society would be able to find other ways to offer adequate care to the people. The President called for vote on the motion to accept the report. The motion was carried.

Committee on Medical Defense — Dr. Horatio Rogers, Suffolk, *Chairman.*

Dr. Rogers presented the report as printed (Appendix No. 14). He noted the five recommendations at the end of the report and stated that they all had to do with a minor effort to reduce the chances of malpractice suits in this state, by education of nurses, students and doctors in the basis of medical ethics as it relates to malpractice. He moved the acceptance of the recommendations. The motion was seconded, and it was so voted. He moved acceptance of the report. The motion was seconded, and it was so voted.

Committee on Finance — Dr. Robert W. Buck, Middlesex South, *Chairman.*

Dr. Buck presented the report as printed (Appendix No. 15). He moved that the one recommendation to increase the salaries of employees in the office of the Society be approved. The motion was seconded, and it was so voted. Dr. Buck moved acceptance of the report as a whole. The motion was seconded, and it was so voted.

Committee on Council Rules and By-laws — Dr. Edward P. Bagg, Hampden, *Chairman.*

Dr. Bagg presented his report (Appendix No. 16) and moved that Chapter 3, Section 5, be amended to include the following addition to the third paragraph: "Each district shall elect no fewer than six councilors." The motion was seconded, put to vote and unanimously carried. Dr. Bagg continued as follows:

> Next, as to Chapter 5, Section 2, in relation to membership, the councilors have already approved an additional change and I am sure that the Committee on Council Rules and By-laws will not object to its addition to this report, so that Section A would read, "residence of place of practice is within the district of that society." And in the second paragraph of Section b, in place of the words "United States or its territories for at least five years," the following should be substituted: "district from which he makes application for at least one year."

He moved that the changes to Chapter 5 as read be approved. The motion was seconded, put to vote and unanimously carried. He then moved acceptance of the report as a whole. The motion was seconded, and it was so voted.

Special Committees

Committee on Hospital and Professional Relations — Dr. Albert E. Parkhurst, Essex South, *Chairman.*

Dr. Parkhurst presented the report as printed (Appendix No. 17). He moved the acceptance of the first recommendation concerning the adoption and practice of the principles of the Committee to Study Special Services — the McKittrick Report. The motion was seconded, and it was so voted. He then moved adoption of the second recommendations concerning hospitals as amended by the Executive

Committee (under No. 2 the last word substituted "encouraged" for "established"). The motion was seconded. Dr. Hayden then spoke as follows:

> Since early last summer, or late last spring, the Subcommittee on National Legislation and the Committee on Medical Economics have been meeting jointly for the purpose of evaluating the concepts of medical care today that need investigation of their possible application in Massachusetts.
>
> In other words, as you probably know, there is a good deal of legislation before the Congress. There are many concepts of what should be done and what should not be done in the field of medical care, and these two committees, operating together, have been trying to sort them out in the hope that ultimately we might be able to come up with a practical program of medical care for the people of Massachusetts — one that would, of course, come to this group for approval before implementation.
>
> As you know, the American Medical Association has a number of principles of medical care, and the Massachusetts Medical Society has a number of principles. Those principles are no good at all unless they are translated into action, and another purpose of these joint meetings is to translate some of these principles into action.
>
> One of the basic problems of medical care in the United States, which is generally recognized by everyone who knows anything in the field, is the whole question of lack of uniform hospital accounting, which has been a bugbear in Massachusetts so far as Blue Cross is concerned, and also so far as Dr. Getting's Department, the Department of Welfare and other groups are concerned.
>
> It seems to us that one of the things that could be done from a practical standpoint to improve the quality of medical care and to reduce its cost in Massachusetts would be for the hospitals to adopt a uniform accounting system. As I have said before, that is not an original idea with us. The American Hospital Association, and the Massachusetts Hospital Association have endorsed it.
>
> I should like to offer an amendment to these resolutions, to substitute, on page 27, lines 38 and 39 of the *Circular of Advance Information* the following: "That the establishment of a uniform system of cost accounting on a State original basis in Massachusetts be encouraged."
>
> I am offering this amendment because, since the resolution was prepared, the Massachusetts Hospital Association has become extremely interested in this problem of cost accounting and uniform cost accounting. They have engaged the services of an accountant with a good deal of hospital experience to work with a committee of the Massachusetts Hospital Association, the Committee on Administrative Practice, of which Dr. Hamilton, of the Newton–Wellesley Hospital, is chairman, and the primary purpose of employing the accountant is to get this idea of cost accounting across to all the hospitals in the Association, to the end that there will be uniform cost accounting. Therefore, I suggest that we encourage the efforts being made to establish such a cost accounting system in Massachusetts. This is something that every doctor who practices in a hospital ought to be interested in.
>
> I also suggest that in view of what I have just said, on page 27, lines 47 through 52 could all be deleted.

The President then put both these amendments to a vote, and both were carried. Dr. Parkhurst then moved acceptance of the report as amended. The motion was seconded, and it was so voted.

Committee on Medical Economics — Dr. Elmer S. Bagnall, Essex North, *Chairman.*

In the absence of Dr. Bagnall, the Secretary presented the report as printed (Appendix No. 18) and moved the adoption of the recommendations. The motion was seconded. Dr. Hayden then remarked that perhaps this group need not concern itself with the federal, state and local tax structure. The recommendations were included because it is absolutely essential that those who were working on medical-care problems, and who were representing the Society as far as national legislation is concerned, know exactly where they stood on federal grants-in-aid.

Dr. McKittrick expressed the hope that action would follow adoption. Dr. Hayden said he hoped that committees working in this field would be helped by this attitude and that, as chairman of the Subcommittee on National Legislation, he would communicate this to congressmen. The recommendations, of course, came from the Hoover Report, and although federal grants-in-aid for medical education had been approved with reservations, some of the members of the Committee believed that the Society ought to have a definite policy toward grants-in-aid per se.

Dr. Chester Keefer asked for clarification of the words "grants-in-aid." Dr. Getting answered as follows:

> The purpose of this is to try to keep as much Massachusetts money in Massachusetts as possible, and I think that Dr. McKittrick is perfectly right that unless this is made known to members of Congress, no good will be accomplished.
>
> At the present time we receive approximately $1 as compared to $5 or $6 grants-in-aid for public-health purposes in Mississippi. We get $1 per capita in Massachusetts, and in Mississippi or Alabama they get $5 or $6. And although we believe that Alabama may have a slightly greater need we do not think that it should be such a great disparity. It has been the Committee's suggestion, therefore, that although we endorse the principle of grant-in-aid, we should do everything we can to make the states raise as much money for their own programs as possible, and that is a way of trying to put off the day when we are likely to have the grant-in-aid for national medical care programs. This refers only to grants-in-aid for so-called health programs, not for anything else.

Dr. Allen put the motion to a vote, and it was carried. The Secretary said that the Executive Committee had amended the first paragraph of the report by substituting the words "the subcommittee on National Legislation" for "The Hayden Committee" and by deleting the words "west-east transfusion" and substituting "these efforts" for "Dr. Hayden's drive." He then moved for adoption of the report as amended. The motion was seconded, and it was so voted.

Committee on Postgraduate Medical Education — Dr. W. Richard Ohler, Norfolk, *Chairman.*

Dr. Ohler presented the report as printed (Appendix No. 19) and moved its acceptance as informational. The motion was seconded, and it was so voted.

Committee on the New England Postgraduate Assembly — Dr. Richard P. Stetson, *Chairman.*

Dr. Stetson presented the informational report as printed (Appendix No. 20) and moved its acceptance. The motion was seconded, and it was so voted.

Committee on Malpractice Insurance — Dr. Carl Bearse, Norfolk, *Chairman*.

Dr. Bearse presented the report as printed as informational (Appendix No. 21) and moved its acceptance. The motion was seconded, and it was so voted.

Advisory Committee on Red Cross Blood Bank — Dr. Lamar Soutter, Suffolk, *Chairman*.

Dr. Soutter presented the informational report as printed (Appendix No. 22). Dr. Hayden moved its acceptance. The motion was seconded, and it was so voted.

Dr. Allen said, "We have been requested by those interested in the Red Cross Bleeding Center on Dartmouth Street to approve the appointment of an Advisory Committee and the personnel of this Committee is composed of the following: Lamar Soutter, *Chairman*; F. Harold Allen, Jr.; Charles Emerson; Harold B. Kenton; William C. Moloney; Dwight O'Hara; Mark F. Lesses; Joseph F. Ross; Carl W. Walter; Stephen Maddock; Loren D. Moore; and Mario Stefanini." Dr. Hornor moved that the committee as nominated by the President be approved. The motion was seconded, and it was so voted.

Committee on Diabetes — Dr. Howard F. Root, Suffolk, *Chairman*.

Dr. Root presented the informational report as printed (Appendix No. 23) and moved its acceptance. The motion was seconded, and it was so voted.

Committee on Redistricting — Dr. Charles G. Shedd, Suffolk, *Chairman*.

Dr. Shedd presented the informational report as printed (Appendix No. 24) and moved its acceptance. The motion was seconded, and it was so voted.

The President asked for a report on the activities of the Boston Medical Library, which had been requested by the Executive Committee. Dr. Henry R. Viets (Suffolk), librarian, spoke as follows:

> Your officers thought you might like to hear a preliminary report on the Boston Medical Library in the last two years, since the Massachusetts Medical Society has been actively participating in the library activities.
>
> The Library in general contains about 350,000 items that are catalogued for your use. In addition, we take 800 periodicals currently. The average use of the library in the last ten years is about 10 or 12 per cent. In other words, the turnover of the library amounts to about 1 item in 10 taken off the shelf and used by somebody in the course of a year. The important thing in relation to the Massachusetts Medical Society, I think, is that that use has greatly increased in the last two years, since you have been supporting the library.
>
> In the first year of your support, 1948, the use of the library jumped 25 per cent, and in 1949 it had jumped another 11 per cent so that it is used at the present time by a third more than ever in its history. Instead of lending out 40,000 items a year to members, we now distribute 60,000 items a year as used in the library and by the associate libraries in Boston and in the vicinity. What is this to be attributed to? There may be other factors in addition to the support of the Massachusetts Medical Society, but it seems unlikely that any other organization would have raised this figure from 40,000 to 60,000 in two years. And I think we may fairly say that it is due to your support and use of the library by the members of the Massachusetts Medical Society that this growth of a third in the use of the library has taken place in the last two years.

Dr. Allen thanked Dr. Viets for his report.

As a result of a voice vote, the President stated that the October meeting of the Council would be held in John Ware Hall at 10:30 a.m.

The Secretary made a motion that the report of the Executive Committee be approved. The motion was seconded, and it was so voted.

New Business

Dr. Edward P. Bagg read a letter from Dr. Milton H. Clifford requesting a change in the by-laws of the Society so that any member of the Society who is currently, or has been in the past, a general officer of the American Medical Association shall be a member of the Council. The President referred this matter to the Committee on Council Rules and By-laws.

Dr. Earle Chapman presented the following resolution:

> Whereas physicians are anxious to lower the cost of medical care and the United States Government twice obtains tax moneys on that amount of money spent for medical care that is below 5 per cent of the individual's income, therefore.
>
> Be it resolved that the Massachusetts Medical Society direct efforts toward making all moneys spent for medical care free of taxation.

Dr. Allen referred this resolution to the Committee on Medical Economics.

Dr. Richard Ohler asked that the Society investigate to find out the plans of the Boston Jubilee. The President referred the matter to Dr. John F. Conlin.

A motion to adjourn was made and seconded, and it was so voted. The meeting adjourned at 1:15 p.m.

H. Quimby Gallupe, M.D., *Secretary*

APPENDIX NO. 1

Attendance of Councilors

Barnstable	A. J. Pothier
D. E. Higgins	C. C. Tripp
H. F. Rowley	Essex North
Berkshire	M. F. Ames
J. H. Fierman	W. J. Bain
P. J. Sullivan	J. T. Batal
Bristol North	Z. W. Colson
J. H. Brewster	J. F. Curtin
M. E. Johnson	A. P. George
J. L. Murphy	H. R. Kurth
W. M. Stobbs	P. J. Look
Bristol South	R. C. Norris
R. B. Butler	L. C. Peirce
D. F. Gallery	F. W. Snow
	F. N. Sweetsir
	C. F. Warren
	C. A. Weiss

ESSEX SOUTH

Bernard Appel
W. D. Babb
W. W. Babson
L. F. Box
D. S. Clark
Gerard Cote
J. J. Crowley
J. H. Fine
T. H. Foote
L. C. Furbush
S. N. Gardner
F. P. Morse, Jr.
A. E. Parkhurst
M. H. Pett
W. G. Phippen
H. D. Stebbins
C. F. Twomey

FRANKLIN

L. R. Dame
J. E. Moran

HAMPDEN

M. S. Allan
E. P. Bagg
M. J. Cariani
A. J. Douglas
E. C. Dubois
Adolph Franz, Jr.
P. E. Gear
A. M. Glickman
D. R. Hayes
S. F. Potsubay
L. A. Putnam
A. G. Rice
A. H. Riordan
G. L. Schadt
J. A. Seaman
H. N. Simpson
G. L. Steele

HAMPSHIRE

E. J. Manwell

MIDDLESEX EAST

J. L. Anderson
T. P. Devlin
E. M. Halligan
W. F. Hickey, Jr.
K. L. Maclachlan
H. L. Mueller
M. J. Quinn
I. W. Richardson
R. R. Stratton
J. M. Wilcox

MIDDLESEX NORTH

P. G. Berman
W. M. Collins
H. R. Coburn
S. A. Dibbins
L. J. Hall
L. F. King
A. J. Stewart
J. D. Sweeney
H. A. Titus

MIDDLESEX SOUTH

E. W. Barron
J. M. Baty
L. A. Blacklow
H. K. Bloom
G. F. H. Bowers
Alice M. Broadhurst
Madelaine R. Brown
R. W. Buck
E. J. Butler
J. F. Casey
E. A. Cooney
H. J. Crumb
C. L. Derick
J. G. Downing
A. G. Englebach
C. W. Finnerty
J. M. Flynn
H. Q. Gallupe
V. A. Getting
J. D. Golden
A. D. Guthrie
C. G. Hayden
J. A. Holmes
W. T. Hood
Eliot Hubbard, Jr.
F. R. Jouett
L. G. Kendall
H. A. Kontoff
J. J. Lepore
A. A. Levi
A. N. Makechnie
J. H. McSweeney
J. C. Merriam
Dwight O'Hara
Fabyan Packard
L. S. Pilcher
Max Ritvo
L. G. Rondeau
G. A. Saunders
S. M. Simons
H. P. Stevens
J. H. Townsend
R. H. Wells
Hovhannes Zovickian

NORFOLK

A. A. Abrams
C. E. Allard
B. E. Barton
Carl Bearse
Elizabeth L. Broyles
J. H. Cauley
G. L. Doherty
J. M. Faulkner
P. S. Foisie
Susannah Friedman
T. R. Goethals
D. L. Halbersleben
H. B. Harris
R. J. Heffernan
P. J. Jakmauh
L. F. Johnson
C. J. Kickham
C. J. E. Kickham
D. L. Lionberger
D. S. Luce
C. M. Lydon
T. F. P. Lyons
F. P. McCarthy
H. L. McCarthy
F. J. Moran
H. R. Morrison
Hyman Morrison
D. J. Mullane
J. J. O'Connell
W. R. Ohler
E. E. O'Neil
G. W. Papen
S. H. Proger
S. A. Robins
D. D. Scannell
L. A. Sieracki
S. L. Skvirsky
Kathleyne S. Snow
J. W. Spellman
A. R. Stagg
W. J. Walton
N. A. Welch
W. A. White, Jr.
G. F. Wilkins
P. R. Withington
E. T. Wyman

NORFOLK SOUTH

D. L. Belding
R. L. Cook
F. W. Crawford
N. R. Pillsbury
D. B. Reardon
R. G. Vinal

PLYMOUTH

J. C. Angley
H. H. Hamilton
D. A. Martin
C. D. McCann
J. A. McLaughlin
G. A. Moore
Mildred L. Ryan

SUFFOLK

H. L. Albright
A. W. Allen
T. J. Anglem
F. G. Balch, Jr.
C. H. Bradford
W. E. Browne
A. M. Butler
A. J. A. Campbell
E. M. Chapman
M. H. Clifford
J. F. Conlin
A. P. DerHagopian
Maurice Fremont-Smith
Joseph Garland
G. L. Gately
R. L. Goodale
A. A. Hornor
L. M. Hurxthal
C. S. Keefer
H. A. Kelly
T. H. Lanman
C. C. Lund
C. F. Maraldi
H. C. Marble
L. S. McKittrick
Donald Munro
F. R. Ober
J. P. O'Hare
L. E. Parkins
L. E. Phaneuf
Helen S. Pittman
J. J. Regan
W. H. Robey
Horatio Rogers
H. F. Root
C. G. Shedd
R. M. Smith
C. M. Stearns
Conrad Wesselhoeft

WORCESTER

A. W. Atwood
George Ballantyne
Jacob Brem
J. B. Butts
F. B. Carr
E. J. Crane
Paul Dufault
G. R. Dunlop
W. J. Elliott
John Fallon
L. M. Felton
Donald Hight
Thomas Hunter
D. G. Ljungberg
J. C. McCann
D. K. McClusky
J. M. Olson
F. A. O'Toole
E. L. Richmond
N. S. Scarcello
J. J. Tegelberg
R. J. Ward

WORCESTER NORTH

J. J. Curley
K. K. Jolma
J. P. Marnane
C. N. McPeak
J. G. Simmons

APPENDIX NO. 2

REPORT OF THE EXECUTIVE COMMITTEE

The committee met at the Harvard Club for lunch on January 4, 1950. The meeting was called to order at 1:00 p.m., Dr. Arthur W. Allen presiding and sixteen councilors present.

Dr. Allen stated that the committee, as the voting members of Blue Shield, would consider the report of the Committee on Blue Cross–Blue Shield problems, whose chairman, Dr. Charles J. E. Kickham, said the report of the committee would be presented by Dr. James C. McCann.

Voting Members of Blue Shield

Dr. McCann then stated that the meeting was now in session as the voting members of Blue Shield for the consideration of the recommendations of Dr. Kickham's committee. Dr. McCann said these would be accepted or rejected in principle and if accepted would be presented to the Council after the details had been worked out.

The first matter to be considered was the question of moving to protect the income group with service contract from $3000 to $5000. Dr. McCann said committees discussing the proposal favored one group rather than two groups of $3000 to $4000 and $4000 to $5000. New Jersey moved to the $5000 level, and Pennsylvania to $4000, and Michigan is proposing a $5000 level. Dr. Allen asked for questions concerning the proposal.

Dr. John J. Curley asked if this new contract would be in competition with insurance companies and make the Society liable in a restraint of trade complaint. Dr. Curley hoped

that Blue Cross would stabilize its contract. Dr. Conlin stated that it was the consensus of the legal counsels of state societies meeting in Washington that the Blue Shield plans not only were not acting in restraint of trade but also were commendable activities in promoting free trade. Dr. McCann said that a new Blue Cross contract was being proposed, which he thought would be a very rational approach to the problem of providing increased benefits. Dr. McKittrick said that there were deficiencies in the Blue Cross program but that he had confidence in the present Blue Cross board and believed they would do the right thing.

Dr. Hayden stated that Blue Cross was watching the effect of the Blue Shield nongroup contract and that so far Blue Shield experience was good. In answer to a question from Dr. Hornor, Dr. Hayden said fees had been set by other groups such as the Veterans Administration and Industrial Accident Boards. He also pointed out that the Bureau of Medical Economic Research of the American Medical Association had stated that what one could buy in 1939 for $3000 now costs $4685.

Dr. McCann referred to a suggestion to have two groups — $3000 to $4000 and $4000 to $5000 — but stated that after the whole problem had been considered it was regarded as advisable to have only one increase with one jump in premiums and fees. Going from the $3000 level to the $4000 pulls in only 10 per cent more of the people. Dr. Hornor asked about payment for consultations, and Dr. McCann that it was actuarially unsound and that all states had stayed away from it except New Jersey.

Dr. McCann explained that the present under $3000 program would remain unchanged and that 75 per cent of the group between $3000 and $5000 must buy the contract to put it into force. Dr. Lawrence Dame made the following motion: "That the upper level of income be $4000 without a change in premiums and fees." There was no second to this motion.

It was then moved that the eligibility level for service contracts be elevated to $5000 with new fee schedules and new premium rates. The motion was seconded, and it was so voted (17-3).

Dr. McCann suggested that the matter of fees be discussed without the effects of deductions and allocations for the moment. He also stated that it had been suggested that the new schedule be essentially 50 per cent increased. There would be some equalization. The medical fees would then be $7.00 for first day and $4.50 for subsequent days. Dr. Hayden pointed out that there would be some injustices in the surgical fees if the whole schedule was increased 50 per cent and that Dr. McCann had suggested taking the fees at $125 in the first schedule and either reduce them to $117 or increase them to $135, so that when 50 per cent is added then would go to either $175 or $200. The fee committees could then decide which fees should go to either $175 or $200. It was then moved that there be a 50 per cent increase and it was so voted unanimously.

Dr. McCann then opened the discussion of the problem of deductions and allocations. He said he thought the people outside the metropolitan area ought to stand on their own feet but that people earning up to $5000 in the big cities find it hard to meet the medical costs since they are faced with higher hospital costs. There was discussion concerning deductions and allocations from several of the committee. Dr. McKittrick suggested that the problem be worked out in detail by the committee on fees and considered at a later meeting of the Executive Committee. Dr. Curley then made a motion that the program be accepted, minus this committee. The motion was seconded, and it was so voted.

Dr. McKittrick moved that the committee on fees be instructed to give this matter particular attention and report to the special meeting of the Executive Committee. The motion was seconded, and it was so voted. The Secretary moved that the date of the special meeting be set as January 25, 1950. The motion was seconded, and it was so voted. A motion was made to adjourn the meeting of the voting members of Blue Shield. The motion was seconded, and it was so voted at 3:45 p.m.

Committee Reports

Committee on Public Relations

The President then called the Executive Committee to order. The Secretary presented the report of the Committee on Public Relations as informational, in the absence of Dr. Kurth. Dr. Hornor moved the acceptance of the report. The motion was seconded, and it was so voted.

Committee on Legislation

The Secretary presented the report of the Committee on Legislation as informational. It was moved, seconded and voted to accept the report.

Subcommittee on National Legislation

Dr. Hayden presented the report of the Subcommittee on National Legislation as informational. A motion was made to accept the report as printed. The motion was seconded. Dr. Hayden moved that the report be amended by inserting asterisks between lines 46 and 47 on page 8 of the pamphlet of Advance Information. The motion was seconded, and so voted. The motion was voted as amended.

Committee on Publications

In the absence of Dr. Richard M. Smith, the Secretary presented the report of the Committee on Publications as informational. Dr. Hornor made a motion that the Committee be encouraged to investigate the problem of continuing the history of the Society and to publish it. The motion was seconded, and it was so voted. Dr. Curley moved the acceptance of the report. The motion was seconded, and it was so voted.

Committee on Membership

Dr. Gallupe presented the report of the Committee on Membership. He noted that there was a recommendation to change the by-laws. Dr. Curley moved approval of this recommendation. The motion was seconded. Dr. Charles J. E. Kickham said that the Norfolk councilors had voted against this recommendation. The question was put and so carried.

Committee on Public Health

The Secretary presented the report of the Committee on Public Health with the one recommendation concerning the appointment of a subcommittee to implement the survey of health service for Massachusetts children. Dr. Hornor made a motion to approve the recommendation. Dr. Curley said he did not approve of the request. Dr. Dame said they should have an opportunity but not blanket authority to act. The motion was seconded, and it was so voted. A motion was made, seconded and voted to accept the report.

Committee on Pilot Clinics

Dr. Ryder then presented the report of the Committee on Pilot Clinics for Dr. Poutas. She stated there was a typographical error — the last word in line 20, page 11 of the pamphlet on Advance Information should be "reached" and not "reacted." She said the clinics had received 2000 telephone calls from interested people. Ninety-eight people had been screened at four trial runs. In January 3, the first night of the clinic, 25 people were screened. Dr. Dame asked what procedures had been pursued, and Dr. Ryder gave detailed answers. Dr. Tripp asked how many days a week the clinic was open, and the answer was four. Dr. Ryder was asked how long the clinic could operate on the present budget and replied "until June 30, 1950." Dr. Curley asked where the reports went, and the answer was "to the family doctor." (The patient is given only an impression — no diagnosis.) Dr. Getting pointed out that the clinic was a research project sponsored by the Society but without any cost to it. He intimated an annual cost to operate such a clinic as $65,000 or $70,000. He said the Massachusetts Cancer Society had contributed $1200. Dr. Getting said he was to ask to get the money from the Public Health Department in Washington as a research grant to the Massachusetts Medical Society. Dr. Buck pointed out that the only money in the budget for the Committee on Pilot Clinics was for the expenses of committee meetings. Dr. Curley moved that the report be accepted. The motion was seconded, and it was so voted.

Committee on Medical Defense

The report was presented by the Secretary with the recommendations in the order printed, all of which received the unanimous approval of the Committee. Dr. Conlin stressed

the following points: physicians in military service are liable for malpractice; registered physicians must also be licensed to practice in the city or town where they are located; physicians should be informed concerning ethical standards; they should be made aware of the basic causes of malpractice suits; information on these subjects should be given to them at the time of admission to the Society. Dr. Devlin moved that the Society consider producing a pamphlet on these subjects for members. The motion was seconded, and it was so voted. It was moved and seconded to accept the report as a whole. It was so voted.

Committee on Finance

Dr. Buck presented the report as printed with the one recommendation concerning the salaries of the office force. He moved adoption of the recommendation. It was seconded and so voted. The Secretary requested Dr. Garland to explain the increase in the budget for the *Journal*. Dr. Garland said the cost of the *Journal* per subscription is now about $6.00. The Society each year has been asked to make an appropriation in varying amounts from $21,000 in 1941 to $5000 in 1947. It seemed wise to ask for a budget figure on a cost basis; for 1950 it will be $3, or half the cost of the individual subscription. The work done for the Society by the *Journal* in 1949 cost about $40,000.

Dr. Dame then made a motion that the trustees of the Boston Medical Library be asked to submit a report to the Council on the activities of the Library and its relations and benefits to the Society. The motion was seconded, and it was so voted. It was moved that the report as a whole be accepted. The motion was seconded, and it was so voted.

Committee on Hospital and Professional Relations

Dr. Parkhurst presented the report and made a motion that the first recommendation (lines 25 to 29, page 27) be approved. The motion was seconded. Dr. McKittrick stated that some staffs might adopt acceptable policies not exactly like those outlined in the McKittrick Report and he moved the recommendation be amended by adding the words "or such other satisfactory arrangements as have been adopted." The motion was seconded, and it was so voted. The main motion was then approved as amended. Dr. Parkhurst made a motion to approve the second recommendation. The motion was seconded, and it was so voted.

Dr. Parkhurst then moved adoption of the recommendation on lines 38 to 46, page 27. The motion was seconded, and it was so voted. Dr. Parkhurst moved adoption of the recommendation on lines 47 to 52, page 27. The motion was seconded. He was asked if this had been talked over with any of the groups. Dr. Hayden said that many had been approached and that Dr. Wilhelm had been in on all the meetings and stated that the matter should not be allowed to bog down and that success of the McKittrick report depended on following through on this fundamental. Dr. Parkhurst made a motion to substitute "encouraged" for "established" (the last word in the recommendation). The motion was seconded, and it was so voted. The main motion was then passed as amended. Dr. Parkhurst then moved the adoption of the recommendation on line 53, page 27, to line 9, page 28. The motion was seconded, and it was so voted. He then moved acceptance of the report as a whole as amended. The motion was seconded, and it was so voted.

Committee on Postgraduate Medical Education

The Secretary presented the report as informational, and it was accepted without discussion.

Committee on Medical Economics

The Secretary presented the report as printed. Dr. Kelley moved the approval of the recommendation on lines 39 to 42, page 29. The motion was seconded. Dr. Kickham objected because it trespassed on the whole tax structure. Dr. Hayden said it was the opinion that there should be a basic attitude regarding grants-in-aid and that the Hoover Commission has made the recommendation. The motion was carried. Dr. Curley moved approval of the second recommendation. The motion was seconded, and it was so voted. Dr. Hayden made a motion to amend the first paragraph of the report as follows: to begin the report with the words "the committee" and substitute the words "the subcommittee on National Legislation" for the words "the Hayden Committee"; to omit the words "it has been like a west-east transfusion" and substitute the words "these efforts" for "Dr. Hayden's drive." The motion was seconded, and it was so voted. Dr. Curley moved adoption of the report as amended.

Committee on Postgraduate Assembly

The Secretary presented the report as informational, and it was accepted.

Advisory Committee on Red Cross Blood Bank

The Secretary presented the report as informational, and it was accepted.

Committee on Malpractice Insurance

The Secretary presented the report as informational, and it was accepted.

Committee on Diabetes

The Secretary presented the report as informational, and it was accepted.

Committee on Redistricting

The Secretary presented the report as informational, and it was accepted.

Dr. McKittrick told of the meeting of the delegates in Washington and how sorry they were that Dr. Bagnall had not received the General Practitioners' Award. He also mentioned the need for a junior American Medical Association and the fact that the Trustees are committed to create some such organization.

New Business

Dr. Charles McCann read a letter from Dr. Bearse to Dr. Allen recommending that a panel of experts be set up for malpractice suits. Dr. Curley made a motion that the Secretary be empowered to list a group of physicians who desire to become members of a panel of listeners or experts to give testimony in court for the defense. The motion was seconded. Dr. Allen suggested the word "listeners" sounded bad. Dr. Curley moved an amendment striking out the word "listeners." The motion was seconded, and it was so voted. Dr. Dame moved to lay the main motion on the table. The motion was seconded, and it was so voted.

The Secretary presented a request from Dr. Allen to set up a committee to correlate the opinions of the Committee on Society Headquarters and the Committee on Postgraduate Medical Education. It was moved that such a committee be set up. The motion was seconded, and it was so voted.

The Secretary presented a request from the Massachusetts State Pharmaceutical Association to have a committee set up to meet with them. A motion to set up such a committee was seconded, and it was so voted.

Dr. Conlin presented a request to set up a committee to meet with the Massachusetts Society of Funeral Directors and Embalmers to discuss the problems of obtaining permission for autopsies. A motion to set up such a committee was seconded, and it was so voted.

A motion to adjourn was seconded, and it was so voted at 6:15 p.m.

H. Quimby Gallupe, M.D., *Secretary*

APPENDIX NO. 3

Law Governing Licensing of Physicians

Section 8. No person shall enter upon, or continue in, the practice of medicine within the commonwealth until he has presented to the clerk of the town where he has, or intends to have, an office or his usual place of business, his certificate of registration as a physician in the commonwealth, or, if it is lost, a certified statement issued by the board, setting forth all the material facts in the original certificate, and a fee of $1.00. Thereupon the clerk shall record the name of the owner of said certificate or certified statement, together with the date of record upon blanks approved by the board, said blanks to be so arranged that a duplicate carbon copy shall be made at the time of the original record. He shall keep the original as a part of his official records and it shall be open to

public inspection. He shall, within twenty-four hours after such recording, forward the duplicate to the board. Whoever practices or attempts to practice medicine without complying with this section or whoever submits to a town clerk a false or fraudulent certificate or certified statement, shall be punished by a fine of not less than five nor more than one hundred dollars; and any town clerk who refuses or neglects to comply with this section shall be punished by a fine of not less than five nor more than ten dollars.

APPENDIX NO. 4

Joint Report of the Committee on Fees and the Subcommittee on Blue Cross-Blue Shield Problems

On December 14, 1949, there was held a joint meeting of the Committee on Fees and the Subcommittee of the Executive Committee on Blue Cross-Blue Shield Problems together with the Chairmen of the Blue Shield Fee Committees and the members of the Central Professional Service Committee of the Blue Shield Board of Directors. Physicians present were:

Harvey A. Kelly, Winthrop
Morgan Sargent, Quincy
Charles A. Wheeler, Leominster
Lucien R. Chaput, Haverhill
Garrett L. Sullivan, Boston
Weston Sewall, Boston
Robert L. Goodale, Boston
Warren R. Thomas, Turners Falls
Richard H. Sweet, Boston
H. Quimby Gallupe, Boston
Robert J. Carpenter, North Adams
Ovar Swenson, Boston
Donald Munro, Boston
Norman A. Welch, Boston
Carleton T. Smith, Worcester
Fletcher H. Colby, Boston
George C. Prather, Brookline
Charles J. E. Kickham, Boston
Roy J. Heffernan, Brookline
Leonard C. Dursthoff, Lowell
Cornelius H. Hawes, Fall River
Harry L. Benson, Winchester
James H. Buskirk, Cambridge
Samuel A. Robins, Boston
James C. McCann, Worcester
Arthur W. Allen, Boston
Leland S. McKittrick, Boston
John I. B. Vail, Hyannis
William T. Green, Boston
William E. Dawson, Taunton
Percy A. Brooke, Worcester
James A. Seaman, Springfield
Lawrence N. Durgin, Amherst
Harlan F. Newton, Boston

The meeting was called for the purpose of considering certain proposed changes in the Blue Shield Program. The attached memorandum from Blue Shield served as the basis for the discussion, which was entered into by virtually every person present.

There was unanimous agreement that individuals and families in the middle income bracket — that is, with incomes between $3000 and $5000 per year — were in need of more adequate protection than that afforded by the Blue Shield program as presently constituted and that the proposed changes in the Blue Shield program seemed to provide a rational solution to this problem from the standpoint of both the subscriber and the physician.

Upon motion duly made and seconded it was unanimously voted that in Blue Shield groups in which at least 75 per cent of the members in the limited (over-income) category participate, a new "service benefit" category embodying the following concepts should be established:

Approximately a 50 per cent increase in the current Blue Shield subscription charges.

Approximately a 50 per cent increase in the current Blue Shield schedule of fees, with additional adjustment of a few selected fees such as those for appendectomy, tonsillectomy and those for certain long and difficult procedures.

An upper income limit of $5000 per annum.

Richard H. Sweet, M.D., *Chairman*
Committee on Fees

Charles J. E. Kickham, M.D., *Chairman*
Subcommittee on Blue Cross–Blue Shield Problems

Memorandum

When the original Blue Shield income limits of $2000 for the individual and $2500 for the family were approved by the Council of the Massachusetts Medical Society, data supplied by the Massachusetts Department of Labor and Industry indicated that about 80 per cent of the wage-earning population of the Commonwealth earned less than these amounts.

During World War II earnings increased. A study made in the fall of 1946 indicated that about 65 per cent of the wage earners in the Commonwealth were "under-income" in terms of Blue Shield's income limits. The Council of the Massachusetts Medical Society thereupon (February, 1947) increased the limit for a family of three or more persons to $3000.

During the past two years wages and salaries have continued to increase, with the result that more and more Blue Shield members have risen into the "over-income" category.

The original Blue Shield schedule of fees was thought to represent about what persons in the under-income bracket might be expected to pay were they to purchase their care in the absence of a prepayment program. Although the schedule was revised in 1947, the level of fees was not appreciably altered at that time.

As wages have increased, so also have medical fees, with the result that the difference between the physician's customary fee to an over-income patient and the Blue Shield allowance toward that fee has become more and more marked and many over-income members have begun to question the effectiveness of the Blue Shield program.

Because of the uncertainties in the economic picture at the end of the war, the Blue Shield Board of Directors was reluctant to propose a basic change in the Blue Shield program at that time. Now, however, it seems certain that the economy will not again subside, at least in the foreseeable future, to the level existing at the time Blue Shield was established.

At a meeting of the Central Professional Service Committee of the Blue Shield Board of Directors held on October 19, 1949, it was decided to recommend to the Board that consideration be given to increasing the Blue Shield income limits, level of fees and subscription rates. Subsequently, the Board devoted two meetings to this proposal during which it was pointed out:

1. That an analysis of Blue Shield claims seems to indicate that the number of persons in the under-income category was slowly but steadily diminishing.

During the last six months of 1948 the following relations existed between unlimited (under-income) and limited (over-income) members.

	Claims Paid	
Unlimited	20,424	45.58%
Limited	16,795	37.48%
Unknown (probably limited)	7,589	16.94%
Total	44,808	

During the first six months of 1949 the following relations existed between unlimited (under-income) and limited (over-income) members.

	Claims Paid	
Unlimited	21,936	40.99%
Limited	20,749	38.77%
Unknown (probably limited)	10,830	20.24%
Total	53,515	

2. That an increasing number of complaints about additional charges are being received from over-income patients, many of whom express doubt concerning the value of the Blue Shield program.

3. While earnings have increased, inflation and the rising cost of living have in many instances nullified the increases.

4. A study of Massachusetts state income tax returns for 1948 made by Mr. R. F. Phelps, former Chief Statistician of the Department of Labor and Industry, and a member of the Blue Shield Board of Directors, reveals that

8.71% had incomes less than $1000
12.75% had incomes less than $2000
54.45% had incomes less than $3000
80.33% had incomes less than $4000
89.53% had incomes less than $5000

On November 30, 1949, the Blue Shield Board of Directors voted to establish a new category of members to include those currently over income who earn less than $5000 per year, provided, however, that 75 per cent of those eligible elect this new type of coverage. At the same time it was voted to increase the schedule of fees and subscription rates 50 per cent as applied to this category.

Under this proposal a group of potential subscribers has two possible choices:

1. All could take the present contract just as they do at present.
2. Those who are under income could take the present contract while those who are over income could take the higher-cost contract provided 75 per cent or more agree to do so. If at least 75 per cent of those in the over-income category did not take the higher cost contract, all would be compelled to take the present contract. This requirement is necessary to avoid adverse selection.

a. Assuming that 75 per cent or more of the over-income members take the higher-cost contract, they would be subject to no additional charge by the physician for covered services if their incomes were less than $5000 per year. If their incomes were more than $5000 an additional charge could be made by the physician.

b. Assuming that 75 per cent of the over-income members did not take the higher-cost contract but did take the present contract, they would be subject to an additional charge by the physician just as they are now subject to an additional charge.

c. For services rendered to members holding the present contract, the present fee schedule would apply.

d. For services rendered to members holding the higher-cost contract, a fee schedule 50 per cent higher than the present schedule would apply.

It was suggested that a few procedures, such as appendectomy and tonsillectomy, might be scheduled at somewhat more than 50 per cent as applied to the higher-cost contract and that a few very long and difficult procedures, such as are found in cardiac and great-vessel surgery and are of infrequent occurrence, might be graded upward in both schedules.

Before any change can be made in the medical aspects of the Blue Shield program, the Executive Committee of the Council must be put on notice. Before any change can be made in the Blue Shield income limits, the Council of the Massachusetts Medical Society must approve.

It is anticipated that the committee on fees, to which consideration of this matter has been referred, will report its recommendations to the Executive Committee through the Subcommittee of the Executive Committee on Blue Cross–Blue Shield Problems, and that the Committee on Fees will also report its recommendations directly to the Council in the usual manner.

APPENDIX NO. 5

Summary of Reasons Why Proposed Program is Deemed Necessary

When Blue Shield was being established, income limits of $2000 for the individual and $2500 for the family were voted by the Council on the basis of wage statistics for 1939 furnished by the Massachusetts Department of Labor and Industries.

In the *New England Journal of Medicine* for March 12, 1942, the Special Committee on Prepayment Medical Care Costs Insurance reported as follows:

Thus it may be summarized that approximately 40 per cent of the wage earners receive from $750 to $1000 a year; that another 40 per cent received from $1000 to $2000 a year, and that, of the remaining 20 per cent, a little less than 10 per cent (8 per cent) earn from $2000 to $2500 per year. If the income of the wage earners is taken as representing the total family income, then the proposed income level for eligibility of $2000 for the individual (83.4 per cent of the wage-earning group) and $2500 for the family (91.4 per cent of the wage-earning group) fairly discharges our responsibility to the low-income wage earner of the State in the initial stage of an experiment having potential magnitude of significant proportions. Interestingly, the comparable industrial state of Michigan adopted similar levels of eligibility, encompassing in Michigan 87 per cent of the workers at $2000 and 93 per cent at $2500. With the passage of time and the achievement of secure footing, these limits might properly be extended.

During World War II wage levels increased, with the result that studies made in 1946 demonstrated that about 65 per cent of the wage earners in Massachusetts had annual earnings of less than $2000 and $2500. In February, 1947, the Council voted to increase the income limits for a family of three or more to $3000.

A study of Massachusetts state income tax returns for 1948 made by Mr. R. F. Phelps, former chief statistician of the Department of Labor and Industry and a member of the Blue Shield Board of Directors, reveals that

8.71% had incomes less than $1000
12.75% had incomes less than $2000
54.45% had incomes less than $3000
80.33% had incomes less than $4000
89.53% had incomes less than $5000

The staff of the Subcommittee on Low Income Families on the Joint Committee on the Economic Report (Eighty-First Congress, 1st Session, 1949) presented the following table showing the distribution of money income of United States families and "single individuals not in families" in 1948:

— -$1000	4.0 million families	10.6%
$1000-$2000	5.6 million families	14.5%
$2000-$3000	7.9 million families	20.6%
$3000-$4000	8.0 million families	20.7%
$4000-$5000	5.0 million families	12.9%
		79.3%

Per-capita income in Massachusetts is somewhat higher than the national average.

The number of Massachusetts families with incomes less than $5000 would probably account for 75 to 80 per cent of the total today.

According to Dr. Frank Dickinson, director, Bureau of Medical Economic Research, American Medical Association, "an income of $4800 in 1947 would be equivalent to the $3000 income in 1935-1939 in purchasing power." (*Journal of American Medical Association*, August 13, 1949.)

Also, according to Dr. Dickinson, "The percentage of families with an income of less than $3000 in 1935-1936 was 92. In 1947, however, the percentage of families with incomes of less than $4800 was approximately 79; under $5000, the percentage was 81 and under $2500, only 39. It is evident, then, that the percentage of families in what was considered a low income group in the 1930's was considerably larger (92 per cent vs. 79 per cent) than the percentage in a comparable income group in 1947."

According to Dr. Dickinson, the cost-of-living index stood at 171 in 1948 whereas the index for the services of physicians was 136. (1935-1939 = 100) (Bulletin 72, Bureau of Economic Research, American Medical Association 1949).

The increasing disparity between the Blue Shield allowance, based on 1939 levels, and the fee charged to over-income Blue Shield members, based on 1947-1949 fee levels, caused many over-income members of Blue Shield to question the adequacy of the Blue Shield program.

It is generally assumed today that the middle-income category extends to $5000.

All prepayment programs before the Congress that include income limits would establish the upper limits at $5000.

Dr. John F. Conlin, in his many contacts with the public, has found general dissatisfaction because there is today no

way in which middle-income individuals and families can determine their liability under the available prepayment programs.

The proposed Blue Shield program simply establishes the relation existing when the present Blue Shield program was founded, except that:

a. Under the present program many of the fees are subsidized by the medical profession, whereas under the proposed program the fees for the $3000 to $5000 group are thought to be adequate.

b. When the present program was established, the subscription rates were such that individuals and families with very low incomes could not subscribe. Under the proposed program this is also true but to a lesser extent. In other words, the proposed program with its two income levels should dip deeper into the low-income group.

The proposed program embodies the traditional principle of "ability to pay."

The cost of living index, which was 100 in 1935-1939 and 159.2 in 1947, is now 167.5. The dollar today is worth between 50 and 60 cents, and $5000 will buy about as much as $3000 would buy in 1939.

APPENDIX NO. 6

Committee on Public Relations

A meeting of the Committee was held at the Harvard Club at 6:00 p.m., on November 29, 1949. President Arthur W. Allen was in the chair. Fourteen of the 18 representatives of the district medical societies were present. Dr. Leland S. McKittrick, president-elect of the Massachusetts Medical Society, Dr. H. Quimby Gallupe, secretary, and Dr. John F. Conlin, director of medical education and information, were also present.

Dr. Dean S. Luce, at the request of the Norfolk District Medical Society, presented to the Committee a problem relative to insurance reports. He called attention to the fact that there should be some universal, uniform type of short form that could be used by physicians to fill out for insurance companies. Much work has been done on this matter by various organizations and committees, but no concrete conclusions have been arrived at. It was therefore recommended that the President appoint a subcommittee to study this problem and report its findings to the Committee on Public Relations. President Allen appointed Dr. Dean S. Luce, Dr. Daniel Reardon, and Dr. Harvey A. Kelly.

Dr. John F. Conlin warned the Committee of the multiple approaches being made to the medical profession relative to the campaign against compulsory health insurance. Many individuals and organizations are opposing compulsory health insurance not because of their sincere convictions concerning the undesirability of this type of insurance but rather because of their own private selfish purposes.

The medical-press-radio conferences that were to have been conducted this October have been temporarily postponed in view of the proposed meeting of the Council of the New England State Medical Societies with the members of Congress from New England and the editors of the major newspapers in New England.

Dr. Conlin further stated that in his opinion ethical publicization of the existence of the Committee on Ethics and Discipline of the Massachusetts Medical Society was a good public-relations project. It not only informed the public that there is in existence such a committee to which it might address its complaints but also implied that the medical profession of its own free will and accord was making an honest effort to keep its house in order.

Dr. Conlin believed that a "news letter" is a very important and desirable project — such a "news letter" being more or less a confidential type of letter keeping the profession informed about present-day problems in medicine.

A public-relations manual is being compiled and within a short time will be published.

A program for a Massachusetts health conference is being planned, to be held in Worcester, Massachusetts, probably in March, 1950.

Dr. Conlin informed the members of the Committee of an industrial health conference to be held in Boston on December 14, 1949.

The Committee discussed several possible candidates for the lay award that is to be given to some individual or group of individuals for outstanding contributions to the field of medicine. No definite action, however, was taken with reference to any of the candidates presented.

It was the general consensus of the Committee that the Marjorie Shearon reports had been very helpful and informative in the past and are a desirable publication for members of the Committee.

Dr. H. Quimby Gallupe reported that the Council of the New England State Societies was sponsoring a meeting and dinner at the Harvard Club, Boston, on Sunday, December 18, 1949, in honor of the members of Congress from New England and the editors of the major newspapers in this area. Each state society will select it official delegation of 10 physicians (Massachusetts — 20 physicians) to invite to the meeting.

The meeting adjourned at 9:30 p.m.

Harold R. Kurth, M.D., *Secretary*

APPENDIX NO. 7

Committee on Tax-Supported Medical Care

The Committee on Tax-Supported Medical Care submits to the Executive Committee and the Council a report for information only. Conferences with heads of various distributors of tax money for medical care have demonstrated a desire of these men to co-operate and to have uniform fees and so forth for all Massachusetts.

The Committee is trying to get representatives of each of these groups to meet together with the Committee to obtain a plan for submission to the Council later.

Donald Hight, M.D.
Francis P. McCarthy, M.D.
William W. Babson, M.D.
Albert A. Hornor, M.D., *Chairman*

APPENDIX NO. 8

Committee on Legislation

The Committee on Legislation has no report to submit at this time. Its activities will begin in January, 1950, with the opening session of the Massachusetts Legislature. All activities since the last meeting of the Council have been confined to the Subcommittee on National Legislation, whose report follows.

David L. Belding, M.D., *Chairman*

APPENDIX NO. 9

Subcommittee on National Legislation

Since the last previous meeting of the Council, the Subcommittee on National Legislation has met jointly with the Committee on Medical Economics and certain other committees of the Society on a number of occasions. The proceedings of those meetings not directly concerned with national legislation are reported by the committees directly concerned.

On October 6, 1949, a letter outlining the attitude of the Subcommittee toward several bills then pending before the Congress was sent to all Senators and Representatives from Massachusetts (this letter is attached). It will be noted that S. 1453, the Emergency Professional Health Training Act of 1949, was among these bills.

In its report to the House of Delegates of the American Medical Association as contained in the November 5, 1949, issue of the *Journal*, the Council on Medical Education and Hospitals had the following to say about S. 1453:

While the Council is not entirely satisfied with the bill, it does incorporate several modifications suggested by the Council's representatives and it is a distinct improvement over any other bill for federal aid to medical education that has been introduced. The chief objection to the bill in its present form is that it provides that osteopathic schools will receive the same aid as medical schools.

The Council is aware that federal aid to medical education creates definite hazards to the continued freedom and independence of the medical schools. With few exceptions, however, the medical schools and their parent universities have expressed the opinion that, unless additional aid is provided, medical education in this country cannot achieve its full development. The legislation which has been passed by the Senate contains safeguards that should protect the medical schools from unwarranted interference in their affairs by the federal government. It must be recognized, however, that if federal officials should become determined to exercise control over the medical schools, these safeguards could be broken through or circumvented without great difficulty. Thus, if the pending measure is enacted into law, the continued independence and freedom of the medical schools will depend basically on the capacity of the federal officials administering the program to recognize that the interests of the nation will be served best if a policy of co-operation and not of domination is adopted.

The greatest safeguard against federal domination of medical education will be the avoidance of a situation in which the medical schools become totally dependent on the federal government for necessary funds. It is hoped, therefore, that the voluntary national organization referred to above will become a reality. Such an organization would possess resources to which the schools could turn for aid, should federal funds ever be offered on terms that were unacceptable. If this organization is established, the Council urges that the members of the medical profession give it their strong support both morally and financially.

The director of the American Medical Association Washington Office reported on November 9, 1949, that the Board of Trustees was opposed to S. 1453 as presently written on the ground that it provided too much federal control over the subsidies to be allowed for medical education. At the Clinical Session of the American Medical Association held in Washington, D. C., December 6-9, 1949, the Board of Trustees and the Council on Medical Education and Hospitals submitted a supplemental report opposing enactment of S. 1453 on the grounds that the payment of $1000 per student to new medical schools was too high, the provision permitting the Surgeon General to make grants for the construction of new medical schools without a prior survey of existing facilities was unwise, and too much power would be given to the National Council on Education for the Health Professions. The House of Delegates concurred with the Trustees and the Council.

Since the adjournment of Congress, the Subcommittee has met with Senator Lodge. Arrangemets for a meeting with Representative Herter have been made and arrangements for a meeting with Senator Saltonstall are being made.

ELMER S. BAGNALL, M.D.
DAVID L. BELDING, M.D.
VLADO GETTING, M.D.
AUGUSTUS THORNDIKE, M.D.
WILLIAM H. SWEET, M.D.
CHARLES G. HAYDEN, M.D., *Chairman*

Representative John W. Hesselton
House Office Building
Washington 25, D. C.

Dear Representative Hesselton:

The Subcommittee on National Legislation of the Massachusetts Medical Society respectfully submits the following comments in regard to several bills now before the Congress.

* * *

S. 1453, the Emergency Professional Health Training Act of 1949, which passed the Senate by voice vote on September 23, 1949, contains a provision which would permit schools of osteopathy to participate in the program to be established if the bill is enacted into law. The companion bill in the House — H.R. 5940 — has not yet been reported out.

The Massachusetts Medical Society believes that S. 1453 should be amended so that only such osteopathic schools as meet standards equivalent to those met by approved medical schools may participate.

* * *

S. 1411, the National School Health Services Act of 1949, passed the Senate on April 29, 1949. The companion bill — H.R. 3942 — was reported to the House Interstate and Foreign Commerce Committee on July 25, 1949.

These bills, among other things, would assist the several states to provide for the prevention and treatment of physical and mental defects and conditions regardless of need.

The Massachusetts Medical Society believes that these bills should be amended so as to provide for treatment only in those instances where parents are financially unable to make such provision.

* * *

The Massachusetts Medical Society favors the establishment of a National Science Foundation as proposed in S. 247, which was passed by the Senate on March 18, 1949, and H.R. 4846, which is being held at present by the Rules Committee in the House.

The Massachusetts Medical Society favors amendment of the Hospital Survey and Construction Act as proposed in S. 614, which passed the Senate on August 9, 1949, and H.R. 5903, which passed the House on October 3, 1949.

Respectfully submitted
By direction of the President
CHARLES G. HAYDEN, M.D., *Chairman*
Subcommittee on National Legislation

APPENDIX NO. 10

COMMITTEE ON PUBLICATIONS

The Committee on Publications wishes to report on two matters that were acted upon previously by the Council. The *Directory* of Fellows has been published and distributed. The cost was $3250. The By-laws are in the process of publication and should be ready for distribution at the time of the Council meeting. The cost will be approximately $825.

There is one other matter that the Committee would like to bring to the attention of the Council. In 1923, Dr. Burrage published a history of the Massachusetts Medical Society from its foundation through 1922. In 1956 the Society will be one hundred and seventy-five years old. It seems appropriate that, in connection with this anniversary, the history of the Society should be brought up-to-date. The Committee on Publications would be glad to undertake the preparation of such a history if it is the wish of the Council that it be done. The Committee has discussed the matter in considerable detail but cannot at this time state who would write the history or the money that would be required. If the Council approves the idea of bringing the history of the Society up-to-date, the Committee will report at a later time on further details.

Dr. Merrill C. Sosman will deliver the Shattuck Lecture at the annual meeting of the Society in May, 1950.

The Committee will report on the *New England Journal of Medicine* at the annual meeting of the Council in May.

OLIVER COPE, M.D.
JOHN FALLON, M.D.
JAMES P. O'HARE, M.D.
CONRAD WESSELHOEFT, M.D.
RICHARD M. SMITH, M.D., *Chairman*

APPENDIX NO. 11

COMMITTEE ON MEMBERSHIP

At the meeting of the Committee on Membership on November 16, 1949, after considerable discussion, it was moved by Dr. Munro and seconded by Dr. Howe that the Committee rescind its previous policy concerning doctors licensed as osteopaths and to allow doctors licensed as osteo-

paths but with a medical degree and practicing only medicine to apply for membership. This would mean that the district secretaries, the committee on membership and the censors would have to operate more carefully and investigate every man thoroughly. It was unanimously voted by the Committee that this action be taken.

It was also voted unanimously to recommend to the Executive Committee a change in the by-laws, Chapter 5, Section 2a (outlining requirements for admission), and that that section be amended to read, "legal residence or place of practice." This change was moved by Dr. Howe, seconded by Dr. Munro and unanimously voted.

WILLIAM A. R. CHAPIN, M.D.
HENRY F. HOWE, M.D.
DONALD MUNRO, M.D.
SAMUEL N. VOSE, M.D.
LEWIS S. PILCHER, M.D., *Chairman*

APPENDIX NO. 12

COMMITTEE ON PUBLIC HEALTH

On November 21, 1949, at 6:00 p.m. at the Harvard Club, the Committee on Public Health held its second meeting of the year 1949. Present were Drs. Frechette, Sisson, Wesselhoeft, Poutas, Conlin, Garland, McKittrick and Gallupe, and Chairman Ward.

The first item of business was a presentation to the Committee of a "Progress Report on the Pilot Health-Protection Clinics" by Dr. John J. Poutas, chairman of the Subcommittee on Pilot Clinics. The establishment of this pilot clinic was voted at the annual meeting of the Council on May 23, 1949, and it was specified at the time it be developed by a subcommittee of the Committee on Public Health. The progress report appears elsewhere as the Report of the Committee on Pilot Clinics and was formally approved by the Committee on Public Health.

The second item of business was consideration of a request submitted to President Allen by James M. Baty and Ralph A. Ross, president and secretary, respectively, of the Massachusetts Chapter of the American Academy of Pediatrics. This request was that Dr. Allen appoint a subcommittee of the Committee on Public Health to aid the various groups interested in utilizing the findings of the survey of "Health Services for Massachusetts Children." The Committee voted to request of President Allen that he appoint such a subcommittee. The Committee also voted in this connection that Dr. Sisson submit to Dr. Allen a list of suggestions of persons who might properly be on such a subcommittee. It was also voted by the Committee that this subcommittee be appointed at once as an interim appointment, prior to the next meeting of the Council.

ALFRED L. FRECHETTE, M.D.
WARREN SISSON, M.D.
CONRAD WESSELHOEFT, M.D.
JOHN J. POUTAS, M.D.
ROY J. WARD, M.D., *Chairman*

APPENDIX NO. 13

SUBCOMMITTEE ON PILOT CLINICS

At the annual meeting of the Council of the Massachusetts Medical Society held on May 23, 1949, a motion was submitted by the Committee on Public Health, and was adopted by the Council approving the establishment of not more than five pilot health-protection clinics. It was further recommended that a subcommittee of the Committee on Public Health be appointed to develop and carry out a program in accordance with the eight principles outlined by Dr. Vlado A. Getting. Accordingly, there was appointed a subcommittee, made up of one representative from each of the 18 medical society districts, and within this group an executive committee of five members was chosen. The executive committee consists of Dr. Poutas, chairman; Dr. Ryder, Secretary; Dr. Cobb; Dr. Dunlop; and Dr. Frechette.

At the first meeting of the executive committee, held on August 31, 1949, Dr. Arthur W. Allen outlined the broad objectives of the program and indicated that, until the entire subcommittee met, the executive committee could do no more than survey the problem. Dr. Getting stated that the Massachusetts Department of Public Health favored such a program but suggested the formation of an advisory committee composed of interested official and voluntary agencies. Dr. Herbert L. Lombard outlined the essentials of a screening clinic, indicating the necessity for obtaining statistical data in the first clinic as a determinant for future clinics. Other problems were then discussed by the group, including the choice and payment of clinic physicians, the location of the first clinic, the advisability of including dental-society representation, and the source of financial support.

On October 5, 1949, the first meeting of the entire subcommittee was held. The following decisions were made:

To develop a single pilot clinic, initially in Boston, preferably in a medical teaching center.

To set up a local project committee to determine certain local problems.

That physicians rendering professional services in the pilot screening clinic be paid for their services.

That a central guiding committee be set up to act as an advisory committee, the composition of which shall be as recommended by the administrator and approved by the subcommittee.

To appoint, temporarily, Dr. Claire F. Ryder as administrator of the pilot screening clinic.

That the executive committee be authorized to meet in the interim between meetings of the entire subcommittee, and that it be granted power to act.

That the final location of the clinic be worked out by the administrator, the suggestions to be acted upon by the executive committee.

A second meeting of the executive committee was held on Monday, November 7, when the following decisions were reached.

That the administrator further investigate a suitable location for the first clinic with the realization that the executive committee favors first the New England Center Hospital, and secondly, the Boston Dispensary, and to empower the administrator and the chairman of the executive committee to make the final decision.

That the clinic be started as soon as possible with December first the preferred date. At the time a "dry run" was urged.

To elect Dr. Claire Ryder as administrator of the first Multiphasic Screening Clinic.

During this meeting the administrator presented a progress report including a proposed budget for the initial clinic of $31,000. She explained that the Public Health Service will consider this a co-operating clinic, and will make available funds to be paid directly to the workers employed in the clinic up to an amount not exceeding $15,000. Approximately $12,000 is available through the services and funds of the Massachusetts Department of Public Health. The remainder, or $5,000, is to be raised from the various voluntary agencies that have indicated interest.

Since the last meeting of the executive committee the following progress has been made:

The New England Center and Joseph H. Pratt Diagnostic Hospital has been chosen as the site for the first pilot clinic.

Publicity of the first clinic to open January 3, 1950, has included an article and editorial in the December 8 issue of the *New England Journal of Medicine* and news releases to the various Boston and Massachusetts papers.

A trial run of the clinic was held on December 1, 6, 7 and 8, when 100 personnel of the Department of Public Health were screened. This trial run, financed by the Department, proved quite successful and indicated that even with the battery of tests offered, it was possible to maintain a rather rigid time schedule without undue haste or confusion.

SIDNEY COBB, M.D.
GEORGE DUNLOP, M.D.
ALFRED L. FRECHETTE, M.D.
BROOKS RYDER, M.D.
JOHN J. POUTAS, M.D., *Chairman*

APPENDIX NO. 14

Committee on Medical Defense

Expenses for 1948 were reviewed in light of the Medical Defense Act. Chairman Rogers raised the question of limiting the amount of Society funds to be spent on any one case, because without some such policy the budget will occasionally be exceeded. The Committee unanimously agreed that no limit should be set, provided the legal fee fairly represents the amount of legal work done. The rationale is that in defending one member the Society is helping to protect all members from fraudulent malpractice suits.

Whether all members should carry insurance was discussed. Dr. Allen observed that uninsured members usually fared better, especially when defended by the Society's lawyers, than insured members defended by an insurance-company lawyer, and mentioned the possibility of recommending that the Society write its own insurance as is done in Maine. Several objections were suggested, and Dr. Allen agreed that it would probably be impractical. It was also agreed that nothing would be gained by throwing all the Society's business to any one insurance company, and that such an arrangement might carry an unfortunate implication of collusion.

Dr. Conlin said there was general ignorance of several matters: that medical officers on active duty were liable to suit as individuals, that doctors failing to notify the town or city clerk of a change of residence were practicing illegally in their new town or city, though holding a state license, and that malpractice suits had been lost on this account. There is also general ignorance concerning the liability of interns.

The question of permitting members to select their own lawyer was discussed. Dr. Allen said it so often worked badly that he had tried to have it eliminated from the Act, but that its elimination would be "in restraint of trade" and of questionable legality. It was agreed that applicants for defense should be dissuaded on the grounds of the more experienced defense offered by the Society's lawyers. If a member were determined to select his own lawyer it was thought proper to suggest Mr. Charles Dunn and Mr. Leland Powers, both experts on malpractice law.

The question of prophylaxis against unwarranted suits was discussed. Dr. Morrison recommended that medical students and nurses in training be given a lecture under Society auspices on the pathogenicity of malpractice suits. Dr. Allen believed a similar lecture could be worked into the schedule of postgraduate assemblies. He mentioned receiving a letter from a medicolegal expert offering his services gratis for such a purpose.

Dr. Conlin cited a recent editorial on the subject and suggested that it should be reprinted in pamphlet form, together with other pertinent material, and that candidates for Society membership be required to read and possibly stand examination by the censors on it. These suggestions all met with approval, and it was further agreed that editorials on this subject should be printed in the *New England Journal of Medicine* from time to time.

Chairman Rogers asked for opinions on how often the Committee should meet. Barring special business the holding of meetings not oftener than once a year was approved. The meeting was then adjourned.

The recommendations of the Committee are as follows:

That the editor of the *New England Journal of Medicine* from time to time obtain and publish editorials on insufficiently know legal facts of importance to the members of the Society as mentioned above.

That the president or other appropriate officer of the Society ask the heads of nurses' training schools in this state to include in their curriculum one half-hour lecture a year on "nursing ethics in relation to malpractice litigation" and offer to supply speakers if desired.

That similar action be taken with the chairman of the Postgraduate Assemblies regarding a talk on "medical ethics in relation to malpractice litigation."

That similar action be taken with the deans of the medical schools in this state regarding a lecture on the same subject to medical students beginning their clinical work.

That the Executive Committee of the Society discuss Dr. Conlin's suggestion about little-known facts concerning malpractice suits with a view to taking appropriate action.

Charles B. Burbank, M.D.
Charles J. Kickham, M.D.
John E. Moran, M.D.
William R. Morrison, M.D.
Horatio Rogers, M.D., *Chairman*

APPENDIX NO. 15

Committee on Finance

The Committee met on November 23 to consider the budget of the Society for 1950.

For the first time since our dues were increased to $25 we were faced with the fact that if all requests for appropriations presented by officers and committee chairmen were granted, our expenditures would exceed our anticipated income. A large item that contributed to this situation was the grant of $5000 made by the Council in October to assist the Committee on Society Headquarters in its deliberations concerning a building program for the Society and other organizations. The Committee does not recommend that this sum be entirely spent, but no retroactive mandate is possible.

The Committee does not believe that the Society should enter into a period of deficit spending or that the dues should be further increased. We urge instead greater deliberation and somewhat less optimism upon all those who have plans for additional expenditures.

Several rather severe cuts in appropriations have been made. These were not made arbitrarily, but only after careful consideration and consultation with the officers of the Society who could supply data to guide us. If there are questions concerning specific items we shall be glad to answer them and to explain the reasons for the Committee's recommendation. Necessary increases in our budget are explained below. Detailed expenses during 1949 (accurate for the first ten months and estimated for November and December), estimated income, and the proposed budget are also presented below.

We have only one recommendation requiring action by the Council as follows:

After investigation by the Secretary of the Society of the prevailing rate of wages, and at his request, we recommend that two girls receive $45.00 per week, one receive $42.50 and one receive $37.50 per week. To make these wage adjustments would increase our budget for clerical service by $1100 (from $7740 to $8840). The increase has been included in the budget recommended herewith.

Francis C. Hall, M.D.
Fabyan Packard, M.D.
Bancroft C. Wheeler, M.D.
Henry H. Faxon, M.D.
Robert W. Buck, M.D., *Chairman*

Detailed Expenses, 1949

Salaries		
Secretary		$10,000.00
Director, Medical Information and Education		10,000.00
Executive Secretary		6,000.00
Treasurer		2,500.00
Assistant Treasurer		500.00
Expenses of Officers		
President		
Travel	$159.35	
Estimate for November and December	100.00	
	259.35	259.35
President-Elect		
Secretary		
Travel	561.92	
Stamps	78.00	
Reporting	468.03	
Personal secretary's tuition	87.50	
Printing and supplies	2,180.26	
Mailing	521.00	
Hoover report	1.80	
Washington report	13.50	
Petty cash	11.75	
	3,923.76	
Estimates for November and December	600.00	
	4,523.76	
Less credits	158.48	
	4,365.28	4,365.28

Treasurer		
Premium on bond	37.50	
Safe deposit box	18.00	
Public accountant	315.00	
Petty cash	19.54	
Loomis Sayles Co.	1,378.23	
	1,768.27	
Estimate for November and December	446.00	
	2,214.27	2,214.27
Director of Medical Information and Education		
Newsclip	230.98	
Printing	174.51	
Travel	152.60	
Personal secretary	1,050.00	
Maintenance of audiograph	30.00	
Women's Auxiliary	500.00	
National Society for Medical Research	250.00	
Boston Better Business Bureau	50.00	
Washington report	13.50	
Mr. Fletcher	75.00	
Personal expenses August through December, 1948	961.69	
Petty cash	42.69	
	3,530.97	
Estimate for November and December	3,000.00	
	6,530.97	6,530.97
Committees		
Arrangements		
Printing	1,051.11	
Stationery and badges	195.53	
Signs	110.60	
Catering	1,011.15	
Rent of auditorium	750.00	
Travel	515.09	
Hotel expenses	2,925.01	
Prizes	50.00	
Rent of films	268.00	
Telephone	23.19	
Editing	7.00	
Electrical	273.08	
Cash for meeting	400.00	
Set up booths	1,554.00	
Expenses of Auxiliary	201.53	
Refunds on booths	205.00	
Refunds on tickets	28.25	
Petty cash	104.71	
		9,673.25
Estimate for November and December	150.00	
	9,823.25	
Income	14,377.60	
Expense	9,823.25	
Profit	4,554.35	
Benevolence		10,000.00
Forwarded to Massachusetts Medical Benevolent Society	4,500.00	
Used by them	2,505.00	
Remaining as credit with them for 1950	1,995.00	
To be set up in our special benevolent fund	5,500.00	
Blue Cross, Blue Shield Problems		
Manuscript for Dr. McCann	75.00	75.00
Bureau of Clinical Information		
Wages	956.30	
Stamps	133.00	
Printing	10.04	
	1,099.34	1,099.34
Censer		
Council Rules and By-laws		
Meals	24.88	
Estimate for November and December	50.00	
	74.88	
Publication of By-laws	800.00	
	874.88	874.88
Diabetes		
Printing and distributing	50.00	
Meals	103.37	
	153.37	
Estimate for November and December	300.00	
	453.37	453.37
Ethics and Discipline		
Meals	73.29	
Estimate for November and December	10.00	
	83.29	
Less income from Brickley Fund	20.00	
	63.29	63.29
Executive		
Meals	170.41	
Estimate for November and December		
	170.41	170.41
Finance		
Industrial Health		
Travel	128.73	
Meals	62.42	
	191.15	
Estimate for November and December	50.00	
	241.15	241.15
Legislation		
Mr. Dunn	3,500.00	
Meals	273.74	
Printing	393.34	
Hotel Statler	75.00	
Washington report	13.50	
Telegrams	102.56	
Petty cash	17.75	
Legislative reporting service	314.72	
	4,690.61	
Estimate for November and December	100.00	
	4,790.61	4,790.61
Medical Defense		
Palmer, Dodge	995.30	
Estimate for November and December	1,500.00	
	2,495.30	2,495.30
Medical Economics		
Meals	112.55	112.55
Medical Education		
3 books	67.50	
3 book plates	9.00	
	76.50	76.50
Membership		
Meals	14.77	
Extra secretarial	25.00	
	39.77	
Estimate for November and Decmbeer	75.00	
	114.77	114.77
National Legislation		
Meals	214.52	
Pamphlets	6.80	
Washington report	81.00	
	302.32	
Estimate for November and December	50.00	
	352.32	352.32
New England Postgraduate Assembly		
Printing and stationery	977.96	
Petty cash	23.82	
Addressing	143.16	
Badges	165.93	
	1,310.87	
Estimate for November and December	5,000.00	
(Expenses)	6,310.87	
Income to date	4,760.50	
Estimate for November and December	1,550.00	
(Income)	6,310.50	
No appreciable profit or loss from estimate figures		
Pilot Clinics	56.77	56.77
Postgraduate Education		
Lectures	1,739.40	
Sanders Hall lectures	610.00	
Rent of sound projector	27.76	
Harvard University	305.59	
Janitor and boys	72.00	
Printing	156.50	
Mailing	14.07	
Petty cash	27.01	
	2,952.33	
Estimate for November and December	1,600.00	
	4,552.33	
Less credit from Commonwealth of Massachusetts	1,581.25	
	2,971.08	2,971.08

Publications		
Meals	83.19	
Estimate for November and December	50.00	
	133.19	133.19
Public Health		
Meals	97.21	
Dues, Massachusetts Central Health Council	10.00	
	107.21	
Estimate for November and December	75.00	
	182.21	182.21
Publicity Code		
Meals	26.40	26.40
Public Relations		
Meals	85.61	
Travel	12.00	
Massachusetts Health Conference	500.00	
	597.61	
Estimate for November and December	570.00	
	1,167.61	1,167.61
School Health		
Meals	30.38	30.38
Society Headquarters		
Envelope sealing machine	162.18	
Partitions	317.00	
Desk	74.00	
Signs	67.60	
Files	141.50	
Blinds	105.88	
Boxes	31.70	
Meals	49.70	
Light	292.34	
Cleaning	226.00	
Rent	2,437.49	
Petty cash	23.01	
	3,928.40	
Estimate for November and December	990.00	
	4,918.40	4,918.40
Other Expenditures		
Boston Medical Library	25,725.00	
Estimate for November and December	1,015.00	
	26,740.00	26,740.00
Cotting Luncheons	525.00	
Less income Cotting Fund	160.00	
	365.00	365.00
Delegates to A. M. A.	1,180.41	
Estimate for November and December	1,400.00	
	2,580.41	2,580.41
Directory, 1949		
1,500 copies	3,250.00	3,250.00
District Medical Society Refunds	8,000.00	8,000.00
General Administrative		
Premiums on Blue Shield and Blue Cross	131.10	
Premium on Workman's Compensation	23.00	
Premium on burglary insurance	10.00	
Premium on liability insurance	11.64	
Dues, Conference of Presidents of State Medical Associations	50.00	
Service on machines	168.94	
Stationery, printing and addressing	951.39	
Supplies	499.87	
Telegrams	112.73	
Dues, Massachusetts Society Executives Conference	5.00	
Subscription to *Journal of the American Medical Association*	12.00	
Petty cash	249.21	
Telephone	630.88	
Travel, Mr. Boyd	147.29	
Publications	14.35	
Stamps	81.45	
	3,098.85	
Estimate for November and December	1,000.00	
	4,098.85	
Less credits	334.82	
	3,764.03	
Plus MMS Clerical	5,240.00	
	9,004.03	
Estimate MMS Clerical for November and December	1,240.00	
	10,244.03	10,244.03
General Fund Profit and Loss Account		
Loss	1,247.20	
Profit	241.65	
	1,005.55	1,005.55
New England Journal of Medicine	10,000.00	10,000.00
Council Dues, New England State Medical Societies	100.00	100.00
Pension plan premium	4,078.00	4,078.00
Shattuck lecture	200.00	
Less income Shattuck Fund	183.34	
	16.66	16.66
Taxes		
Federal Old Age	176.89	
Estimate for November and December	25.00	
	201.89	201.89
State Unemployment	88.45	
Estimate for November and December	20.00	
	108.45	108.45
Federal Unemployment		
Estimate for November and December	60.00	60.00
Total Expenditures		139,525.39

INCOME, 1949

Income from annual dues	133,368.00	
Estimate for November and December	5,500.00	
	138,868.00	138,868.00
Income from non-resident dues	2,632.00	
Estimate for November and December	6.00	
	2,638.00	2,638.00
Income from General Fund	5,733.00	
Estimate for November and December	1,268.00	
	7,001.00	7,001.00
Income from Phillips Fund	250.00	250.00
Sale of Directories	23.00	23.00
Income from censor fees	531.00	
Estimate for November and December	564.00	
	1,095.00	1,095.00
Profit, Committee on Arrangements	4,554.00	4,554.00
Total income		$154,429.00

	BUDGET 1949	EXPENDITURE 1949	BUDGET 1950	CHANGE INCREASE	CHANGE DECREASE
SALARIES					
Secretary	10,000	10,000.00	10,000		
Director, Medical Information and Education	10,000	10,000.00	10,000		
Executive Secretary	6,000	6,000.00	6,000		
Treasurer	2,500	2,500.00	2,500		
Assistant Treasurer	500	500.00	500		
EXPENSES OF OFFICERS					
President	300	259.35	300		
President-Elect	100	—	100		
Secretary	3,500	4,365.28	4,500*	1,000	
Treasurer	2,000	2,214.27	2,300**	300	
Director, Medical Information and Education	6,060	6,530.97	5,000		1,060
COMMITTEES					
Arrangements	200	(profit)	100		100
Benevolence	10,000	10,000.00	10,000		
Blue Cross–Blue Shield	—	75.00	—		
Bureau of Clinical Information	3,000	1,099.34	—		3,000
Cancer	50	—	—		50
Co-ordinating	—	—	500	500	

	BUDGET 1949	EXPENDITURE 1949	BUDGET 1950	CHANGE INCREASE	CHANGE DECREASE
Council Rules and By-laws	850	874.88	75		775
Diabetes	—	453.37	150	150	
Ethics and Discipline	50	63.29	75	25	
Executive	200	170.41	200		
Fees	—	—	—		
Finance	25	—	25		
Hospital and Professional Relations	—	—	100	100	
Industrial Accident Board	—	—	—		
Industrial Health	150	241.15	650†	500	
Legislation	6,500	4,790.61	5,000		1,500
Malpractice Insurance	200	—	—		200
Maternal Welfare	—	—	—		
Medical Defense	2,000	2,495.30	2,000		
Medical Economics	75	112.55	150	75	
Medical Education	—	76.50	25	25	
Membership	150	114.77	150		
National Emergency Service	200	—	—		200
National Legislation	—	352.32	350	350	
New England Postgraduate Assembly	1,000	—	100		900
Pilot Clinics	—	56.77	100	100	
Postgraduate Medical Education	3,500	2,971.08	3,000		500
Publications	75	133.19	100	25	
Public Health	200	182.21	200		
Publicity Code	—	26.40	—		
Public Relations	600	1,167.61	100		500
Red Cross Blood Bank Advisory	—	—	—		
Redistricting	—	—	100	100	
School Health	—	30.38	150	150	
Society Headquarters	4,100	4,918.40	9,200‡	5,100	
Tax Supported Medical Care	50	—	50		
Women's Auxiliary Advisory	—	—	—		
Other Expenditures					
Boston Medical Library	27,000	26,740.00	27,000		
Cotting Luncheons	300	365.00	400	100	
Delegates to A. M. A.	2,500	2,580.41	6,000§	3,500	
Directory (1949)	3,000	3,250.00	—		3,000
District Medical Society Refunds	8,000	8,000.00	8,000		
General Administrative	12,000	10,244.05	13,500‖	1,500	
General Fund, Profit and Loss Account	—	1,005.55	—		
New England Journal of Medicine Subscriptions	10,000	10,000.00	16,000¶	6,000	
New England State Medical Societies Council Dues	100	100.00	100		
Pension plan premium	4,100	4,078.00	4,100		
Shattuck Lecture	20	16.66	20		
Taxes	1,000	370.34	500		500
Totals	$142,155	$139,525.39	$149,470	$19,600	$12,285

*Increased cost of office supplies, telephone, postage, etc.

**Increased fee to Loomis Sayles Co.

†This may not be used if expense of Health Conference is borne by the Insurance Companies.

‡Includes $5,000 voted by the Council in October, 1949.

§7 delegates instead of 6; trips to San Francisco and Denver.

‖Increased clerical service (includes secretary to Director of Medical Information and Education).

¶This amount divided by the number of active members (approximately 5,328) is to be regarded as your subscription rate to the *Journal* (nonmembers pay $7.00). Any unexpended funds are returned to the Society.

APPENDIX NO. 16

Committee on Council Rules and By-laws

The Committee presents the following changes in the by-laws, which have been previously approved in principle:

Chapter III, Section 5, the following new sentence is added to the third paragraph: "Each district shall elect no fewer than six councilors."

Chapter V, Section 2 (b). In the second paragraph, for the words "United States or its territories for at least five years," the following should be substituted: "district from which he makes application for at least one year."

Edward P. Bagg, M.D., *Chairman*

APPENDIX NO. 17

Committee on Hospital and Professional Relations

On October 7, 1949, Mr. Warren F. Cook, executive director of the New England Deaconess Hospital and chairman of the Professional Services Committee of the Massachusetts Hospital Association, gave the following reply to our repeated request that they approve the principles recommended by the Committee to Study Special Services:

At its last meeting, the Massachusetts Hospital Association voted to reaffirm the principles adopted by the American Hospital Association in reference to the hospital and the medical specialties. These principles are stated in the attached "Principles of Relationship Between Radiologists and Hospitals" of the Council on Professional Practice of the American Hospital Association, and apply similarly to pathologists and anesthesiologists.

COUNCIL ON PROFESSIONAL PRACTICE
of the
American Hospital Association
Principles of Relationship Between Radiologists and Hospitals

In view of the current discussions concerning the relationship of radiologists to hospitals, and because of the desirability of protecting the public, of maintaining radiological services of high efficiency, of safeguarding the hospitals, the hospital radiologist and the interests of the non-hospital radiologist, the following basic principles are hereby approved by the Board of Trustees of the American Hospital Association:

1. The radiological service of the hospital shall be maintained primarily for the benefit of the sick.

2. Every hospital radiological department should be under the direction of a competent radiologist, preferably a diplomate of the American Board of Radiology or one who is working toward that objective. If, because of size or isolation, such arrangement be not feasible, some member of the general medical staff trained in radiology would be in charge and a consultation service arranged with a nearby radiologist.

3. The radiologist is entitled to recognition as a professional member of the medical staff and as head of a hospital department.

4. The preservation of the unity of the hospital and its component departments and activities is an essential administrative principle. This principle can be maintained without any infringement on professional rights or professional dignity.

5. Inasmuch as no one basis of financial arrangement between a hospital and its radiologist would seem to be applicable or suitable in all instances, that basis should be followed which would best meet the local situation. This may be on the basis of salary, commission or privilege rental, but in no instance should either the hospital or the radiologist exploit the other or the patient.

6. When an arrangement is effected whereby the radiologist of the hospital pays a rental for space and services, cares for non-pay patients and in return retains all private fees collected, such contract should clearly cover the matter of depreciation of equipment, replacements and additions, should protect the radiologist against excessive non-pay work and should take into consideration the "good will" by virtue of which a large proportion of the paying clientele is attracted.

These principles were approved by: the Board of Trustees of the American Hospital Association; the Radiological Inter-Society Committee (officially representing the American College of Radiology, the American Roentgen Ray Society, the Radiological Society of North America and the American Radium Society); the Council on Medical Education and Hospitals of the American Medical Association; and the American College of Surgeons.

Consequently, it is the opinion of the Committee that further conferences with the Massachusetts Hospital Association will prove useless and are inadvisable. Since the recommendations of the Committee to Study Special Services have not yet been given their support on a state level, we believe our request can be made more effective if, before another conference is held, as many as possible of the hospitals within the Commonwealth can be induced to adopt these principles and put them in operation.

Therefore, we make the following recommendations:

The pathologists, radiologists, anesthesiologists and physiotherapists be urged to initiate discussions and plans among their own medical staffs in their own hospitals that may lead to the adoption and practice of the Principles contained in the report of the Committee to Study Special Services — the McKittrick Report.

The Secretary of the Society be notified in writing when any hospital has adopted the recommendations of the Committee to Study Special Services.

On October 13 and November 2 at joint meetings of this committee and the Committee on Medical Economics and Subcommittee on National Legislation, it was voted:

In order that hospitals may be assured adequate and equitable payment by or in behalf of patients it is recommended:

1. That a uniform system of cost accounting be established on a state or regional basis in Massachusetts.* Such a standardized accounting system should make it possible to compare costs based on units of Service among the several hospitals and also make it possible to set rates of payment for such services based on actual cost. It should also make it possible to separate the cost of medical and non-medical services rendered in hospitals. Such accounting should further provide for the separation of the cost of patient care, research and teaching.

2. That the Massachusetts Medical Society invite representatives of the Massachusetts Hospital Association, the United Community Services, the Blue Cross, the Blue Shield, and the various state governmental agencies purchasing services from hospitals to attend a meeting at which a plan to implement a uniform system of hospital accounting may be established.†

3. That a committee composed of representatives of the Committee on Hospital and Professional Relations of the Massachusetts Medical Society, the Massachusetts Hospital Association, and Drs. Bagnall, Getting and Hayden, be constituted for the purpose of delineating the relationships which should exist between medical staffs and administrative officials and bodies in hospitals in the Commonwealth, and that the President of the Massachusetts Medical Society formally advise the President of the Massachusetts Hospital Association of this action and request official participation.

JOSEPH A. HOLMES, M.D.
STORER P. HUMPHREYS, M.D.
HARVEY R. MORRISON, M.D.
DONALD A. NICKERSON, M.D.
SIDNEY C. WIGGIN, M.D.
ALBERT E. PARKHURST, M.D., *Chairman*

*This sentence was amended by the Council to read: "That the establishment of a uniform system of cost accounting on a state original basis in Massachusetts be encouraged."

†This paragraph was deleted by the Council.

‡The Council amended the paragraph by deleting the last sentence and by substituting "Committee on National Legislation" for "Hayden committee."

§The Council amended this paragraph by substituting "these efforts" for "Dr. Hayden's drive."

APPENDIX NO. 18

COMMITTEE ON MEDICAL ECONOMICS

Owing in large part to the indefatigable initiative and energy of the chairman of the Committee on National Legislation (Dr. Hayden), the Committee on Medical Economics has sat jointly all summer and fall with the Hayden committee. It has been like a west-east transfusion.‡

Whenever better perspective could thereby be obtained, some very able special guests were invited to participate as were other special committees of the Society. The concept behind this approach seems to us worthy of more emulation, and we commend to the Council careful study of the several products of Dr. Hayden's drive.§

The following principles were adopted by the Committee on Medical Economics:

Present tax systems, federal, state and local, are so constituted as to make it impossible for most states and local communities to raise revenue sufficient to carry out their traditional responsibilities in the field of health and medical services.

Until such time as present tax systems, federal, state and local, are reconstituted, federal grants-in-aid will be offered and accepted for the purpose of initiating, stimulating and supporting state and local governmental responsibilities in the field of health and medical services.

Without initial stimulation and continuing support and interest from the federal level many states and local communities would either fail for lack of interest or find themselves unable financially to carry out their responsibilities in the field of health and medical services.

The Council of the Massachusetts Medical Society has approved the following principle: "Provision of adequate medical care for those unable to obtain it by voluntary prepayment plans or by direct payment is the responsibility of the local or state government. Part of the burden of this responsibility may be assumed by charitable agencies. Federal grants-in-aid to state programs administered by state boards of health is an acceptable method of helping to meet this responsibility."

The present trend toward providing categorical grants is undesirable from an administrative standpoint. However, it has certain value in that appropriations so extended are probably more nearly adequate than would be the case if the trend were toward a single inclusive grant.

While for some time federal grants-in-aid in the field of health and medical service have been increasing in amount, the ratio of the amount of federal grants to state appropriations has been decreasing.

The so-called "low per capita income states" are steadily increasing their standards of living and, concomitantly, their ability to solve their own problems in the field of health and medical services.

The formula employed for the distribution of federal grants-in-aid for health and medical services has not taken into account the relative cost, quality and availability of health and medical services as between the several states.

It is therefore recommended:

That the tax structure — federal, state and local, be so reconstituted as to permit the states and local communities to finance their own traditional responsibilities in the field of health and medical services.

That with reconstitution of the tax structure, federal grants-in-aid be reduced proportionately as state and local community appropriations for health and medical services increase, except for special demonstrations and needs among the several states.

HAROLD M. FROST, M.D.
VLADO A. GETTING, M.D.
HUGH LEAVELL, M.D.
ELMER S. BAGNALL, M.D., *Chairman*

APPENDIX NO. 19

COMMITTEE ON POSTGRADUATE MEDICAL EDUCATION

With the organization of twelve teaching centers throughout this state, the program of postgraduate teaching for the current year is progressing very satisfactorily. In addition to the teaching centers, the program for the greater Boston area will be held between March 6 and April 26, 1950, at Ware Hall, 8 The Fenway. In other words, the general concept and extent of postgraduate teaching is essentially the same as in previous years.

For the coming year very definite changes may be necessary. With the advent of the Academy of General Practice, the increased interest in community hospital staff exercises and the increased interest in improved medical care, the Society will be faced with increased demands so far as postgraduate teaching is concerned. The Committee is giving serious consideration to the problem. An extended report may be expected at the May meeting. In the meantime, it is perhaps not too much to ask that all members of the Council give careful individual thought to the problem.

W. RICHARD OHLER, M.D., *Chairman*

APPENDIX NO. 20

COMMITTEE ON THE NEW ENGLAND POSTGRADUATE ASSEMBLY

The New England Postgraduate Assembly was held at the Copley Plaza Hotel on November 9 and 10 and on the morning of November 11, 1949. The total registration this year was 975. The distribution was as follows: Massachusetts 729, Rhode Island 57, New Hampshire 53, Maine 44, Connecticut 23, Vermont 28, New York 11 and, registering from various other states, 19. The publicity regarding the Assembly, in addition to sending the advance programs and hospital posters, was disseminated throughout the New England states by the Registration Committee starting in the early autumn; two sets of postcards were mailed to each physician of New England — a total of 13,000 — the first announcing the dates of the Assembly, and the second announcing the speaker and subject of the dinner; an advertisement was carried in two numbers of the *New England Journal of Medicine* and in one number of the *Connecticut State Medical Journal*.

This is the first year that the Assembly has extended beyond two days. The attendance on the last half day at both the scientific assembly and television was extremely gratifying, and the two and a half day program is much to be desired by the exhibitors.

Four papers were given each morning, six papers each afternoon, for a total of twenty-four. Sixteen speakers from outside Boston presented these twenty-four papers. In addition, on the evening of November 9, Dr. William B. Castle gave a lecture on the subject "The Clinical Physiology of Vitamin B_{12}." This was followed by an entertainment attended by approximately 400 registrants and their guests. On the evening of November 10 Dr. Austin Smith, from the American Medical Association, gave the evening's address entitled "Some Trends in Medical Problems." One hundred and sixty persons attended this dinner.

The television program, sponsored by E. R. Squibb and Sons and produced at the New England Medical Center, was extremely well received. The institution of this program was effected through the initiative of Mr. Robert St. B. Boyd. The New England Medical Center and the participating Massachusetts Infantile Paralysis Clinic of the Children's Hospital deserve a great deal of gratitude for their very real efforts in arranging the program and for the finesse with which it was executed. No accurate count of attendance was secured but at all times the rooms in which the television was being received were completely filled for a total of something over 300 physicians.

There were 38 commercial exhibits, and, after their various representatives had been interviewed, it was the definite opinion that they seemed well satisfied with the attendance and interest shown in their products.

The total listed expense of the 1949 Assembly was $6656.43. The listed receipts were $6353.00 with $110.00 outstanding. These figures show an operating loss of $193.34. A breakdown of the expense is as follows:

Printing, mailing and advertising	$2,516.93
Speakers' expenses (traveling)	972.41
Hotel expenses including rent of exhibition and assembly rooms	1,880.39
Music, entertainment and refreshments for Jamboree	501.55
Setting up booths	458.00
Visual equipment and operators	150.50
Cash expenditures	100.00
Miscellaneous expenses	76.65
	$6,656.43

It seems that the subjects presented to the Assembly were timely and well received by the attending physicians. Whether or not the attendance was influenced by the two postcard announcements, sent out at a cost of $286.30, is somewhat problematical. Nonetheless, for the coming year an early announcement of the dates and place of the meeting seems to be worth while and a justified expenditure. The evening of entertainment appears well worth while even though this did result in an expense of $501.55. The concept of having a lecturer precede the entertainment and deliver a somewhat more exhaustive treatise than is possible in the regular scientific sessions seems worthy of repetition. The success of the television program was definite, and this instrument for presenting clinics before the Assembly has many advantages and obviates many disadvantages of the multiple clinics held previously at the various Boston hospitals.

Acknowledgment is gratefully given to members of the various committees for their wholehearted co-operation and work in organizing and running the Assembly; to Jacob Ruppert for providing beer for the Jamboree; to E. R. Squibb and Sons for sponsoring the television program; to the staff of the New England Medical Center and to the staff of the Massachusetts Infantile Paralysis Clinic of the Children's Hospital for producing this program; and, by no means least important, to the many speakers who gave their time to present their subjects before the Assembly.

The Ninth Annual Postgraduate Assembly will be held at the Statler Hotel on November 6, 7 and 8, 1950.

RICHARD P. STETSON, M.D., *Chairman*

APPENDIX NO. 21

ADVISORY COMMITTEE ON MALPRACTICE INSURANCE

A meeting of the Advisory Committee on Malpractice Insurance was held on November 30, 1949, at the Boston Medical Library.

Attention was called to a Bill, S 606, which has become Chapter 183 of the Laws (of Massachusetts) of 1949.

The law as published in the *Journal of American Medical Association* is as follows:

A statement of fact or opinion on a subject of science or art contained in a published treatise, periodical, book, or pamphlet shall in the discretion of the court, and if the court finds that it is relevant and that the writer of such statement is recognized in his profession or calling as an expert on the subject, be admissible in actions of contract

or tort for malpractice, error, mistake against physicians, surgeons, dentists, optometrists, hospitals and sanatoriums, as evidence tending to prove said fact or as opinion evidence; provided that the party intending to offer as evidence any such statement shall, not less than three days before the trial of the action, give the adverse party notice of such intention, stating the name of the writer of the statement and the title of the treatise, periodical, book, or pamphlet in which it is contained.

It was the opinion of the Committee that in view of the implications of this law all members of the Society be urged to carry physicians' liability insurance.

William J. Brickley, M.D.
Charles D. McCann, M.D.
Horatio Rogers, M.D.
Maurice Fremont-Smith, M.D.
Carl Bearse, M.D., *Chairman*

APPENDIX NO. 22

Advisory Committee for the Red Cross Blood Bank

This report is informational only.

A meeting of this committee was held on November 7, 1949. Besides the members of the Committee, Dr. Robert McCready of the Massachusetts Biological Laboratory, and Dr. William Freeman, Medical Director of the Massachusetts Red Cross Blood Program, were present. The difficulty that some doctors have in understanding the mechanism for getting blood from the Red Cross was discussed. It was decided to have Dr. Freeman draw up a letter explaining how blood could be obtained and to submit this letter to Dr. Garland for publication in the *New England Journal of Medicine*, if he approved. Dr. McCready then presented the results of the state investigations of the technical reliability of the various hospital laboratories doing blood typing. These results showed that some laboratories were doing dangerously inaccurate work and that others would not even co-operate with his testing program. The Committee then drew up plans for improving blood typing throughout the State. The first step was to obtain the co-operation of the hospital blood banks, which have well trained personnel and facilities, to send out forms to every blood bank or grouping laboratory in the State offering them a free program of education. This education program is to be adjusted to the free time of the trainees and to include comprehensive instruction in all phases of blood bank administration, handling of blood, grouping, cross-matching and so forth. At the time of submitting this report, the Committee had obtained the necessary training facilities and had drawn up preliminary forms to be sent to the various hospital laboratories. A subcommittee of Drs. Moloney and Allen is drawing up the details of the training program itself. It is expected that thirty to forty hours of training per person will be sufficient and that about a dozen people can be trained at a time. Further discussion was carried on as to obtaining better co-operation between doctors and the Red Cross, the Red Cross and the public, in order that more blood donors can be obtained. Dr. Freeman reported an increase in the number of donors, although the amount of blood available was considered to be still far short of the amount used in this state. It was recommended that the committee urge the Red Cross to use wider and more consistent advertising to help them with the procurement of donors.

F. Harold Allen, Jr., M.D.
Stephen Brown, M.D.
Charles Emerson, M.D.
Harold B. Kenton, M.D.
William C. Moloney, M.D.
Joseph F. Ross, M.D.
Lamar Soutter, M.D., *Chairman*

APPENDIX NO. 23

Committee on Diabetes

This report is informational only. The diabetes-detection program was continued with Diabetes Week from October 10 to 16, 1949. Diabetes committees in thirteen district societies of the Massachusetts Medical Society carried out local programs. More than 200 industries within the state are co-operating by carrying on detection programs.

Howard F. Root, M.D., *Chairman*

APPENDIX NO. 24

Committee on Redistricting

This report is informational only. We can report progress in that the executive committee of our committee has held a meeting.

This committee was of the opinion that a problem does exist, the question being whether redistricting of the Society would promote greater interest in the district societies.

The executive committee agreed that a questionnaire should be compiled and forwarded to all the councilors for a collective opinion.

This questionnaire is in the progress of being compiled and will be sent to the councilors some time in the future.

Charles G. Shedd, M.D., *Chairman*

The New England Journal of Medicine

Formerly
The Boston Medical and Surgical Journal
Established 1828

Official Organ of
THE MASSACHUSETTS MEDICAL SOCIETY
and
THE NEW HAMPSHIRE MEDICAL SOCIETY

OWNED BY THE MASSACHUSETTS MEDICAL SOCIETY AND PUBLISHED WEEKLY UNDER THE JURISDICTION OF THE COMMITTEE ON PUBLICATIONS

Richard M. Smith, M.D., *Chairman*
James P. O'Hare, M.D. Conrad Wesselhoeft, M.D.
Oliver Cope, M.D. John Fallon, M.D.

Joseph Garland, M.D., EDITOR

ASSOCIATE EDITORS
Thomas H. Lanman, M.D. Donald Munro, M.D.
Henry Jackson, Jr., M.D.

Clara D. Davies, EXECUTIVE EDITOR
Robert O'Leary, ASSISTANT EDITOR

EDITORIAL BOARD
C. Guy Lane, M.D. Maxwell Finland, M.D.
Henry R. Viets, M.D. Carroll B. Larson, M.D.
Robert M. Green, M.D. C. Stuart Welch, M.D.
Dwight O'Hara, M.D. Vernon P. Williams, M.D.
Fletcher H. Colby, M.D. Benjamin Castleman, M.D.
Robert L. Goodale, M.D. Hugh R. Leavell, M.D.
Chester M. Jones, M.D. J. Englebert Dunphy, M.D.
Harvey R. Morrison, M.D. Charles H. Burnett, M.D.
Theodore H. Ingalls, M.D.

SUBSCRIPTION TERMS: $7.00 per year in advance, postage paid, for the United States (medical students, $4.00 per year); Canada, $8.00 per year (Boston funds); $9.50 per year for all foreign countries belonging to the Postal Union.

MATERIAL should be received not later than noon on Thursday, three weeks before date of publication.

THE JOURNAL does not hold itself responsible for statements made by any contributor.

COMMUNICATIONS should be addressed to the *New England Journal of Medicine*, 8 Fenway, Boston 15, Massachusetts. Telephone KE 6-2094.

ACCENT ON THE POSITIVE

AMERICAN medicine, if those who are deeply concerned over present trends in Government are to be credited, stands today as the country's first defense against eventual complete socialization. This is not the belief of physicians alone, possibly prejudiced because of the presumably well intentioned assaults that are being made on the freedom of their profession; it is a conviction shared by many devoted subscribers to the principles of democracy.

Organized medicine has become aware of this greater responsibility added to the necessity for combating the dangers that threaten its own traditions of service, and over a year ago the American Medical Association entered fully into the battle for professional independence. During this period more than ever before — perhaps because of the necessity for levying an assessment — the Association has been criticized for its methods and its policies, but particularly for what was assumed to be its negative attitude toward its problems. It has been criticized for opposing the obvious, serious and urgent dangers that confront the practice of medicine, and for having failed to offer satisfactory alternatives to the revolutionary proposals for the distribution of medical care that are being made by the exponents of the welfare state.

Such criticism, some of it justified, much of it unjustified, has become an unfortunate habit with a number of persons, many of them physicians who might otherwise be spending their time to far greater advantage laboring for the improvement of their profession and its relations with the public.

They might be sharing in and spreading information concerning the work that is constantly in progress throughout the structure of the Association, in the improvement of medical education and in the education of the public in the progress of medicine, and in the careful thought that is being given to the extension of voluntary health plans. They might be working through their state and district medical societies for the development at these levels of positive programs of better medical practice, for the assurance of day and night medical care, for the regulation of fees and for the establishment, in those states where they do not already exist, of grievance committees and other organized efforts for improved public relations.

The progress that has been made in this first year's campaign is satisfactory, as became evident during the national conference held in Chicago on February 12. The first desperate defensive battle has been won, and the Association is ready to develop as positive an attack on the problems of medical care as is consistent with its type of organization. Much of this work must still be in the nature of investigation and education, transmitted to and through the constituent state associations and the component county and district societies that make up the national body, and communicated to the public by many agencies. Not the least of these are the active woman's auxiliaries.

Among these functions the problems of national legislation are investigated by the Washington

office and the legislative committee of the Association, which analyze all bills pertaining to health and publish information concerning them. Of special importance are the so-called "fringe" bills on a variety of subjects, which, by gradual attrition of medical liberties, implement the Fabian policy of "divide and conquer."

It is apparent that Congress is showing an increasing respect for the program and its educational campaign. It is also apparent that the program of medicine must become increasingly constructive and unremitting in its efforts to effect the optimal distribution of medical care, and that it must continue to enlist strong allies among the nonprofessional groups.

FOLIC ACID AND "THERAPEUTIC DISSECTION"

When pteroyl glutamic acid (folic acid) was isolated and then synthesized in 1945 [1-3] it aroused considerable interest not only because of its widespread importance as a growth factor but also because of its therapeutic activity in various types of macrocytic anemia.[4, 5] In the treatment of pernicious anemia, first reports indicated that doses of 5 to 20 mg. given by mouth daily resulted in optimal reticulocyte and erythrocyte responses.[6, 7] Subsequent studies demonstrated that although the hematologic response might be adequate, a beneficial effect on the neurologic lesion was often lacking.[8, 9] Since a number of patients showed well defined neurologic lesions while taking folic acid as the sole medication, the possibility suggested itself that the chemical was even directly harmful to central-nervous-system tissue.[9] The speculation was then made that pteroyl glutamic acid might compete for and thus interfere with the metabolism of certain glutamic acid systems known to be of importance in brain-tissue oxidations.[9] Following these observations the warning was made in a previous editorial[10] that folic acid should under no circumstances be used as a specific medication. The experience of the past two years suggests that this point of view needs revision.

That folic acid does not offer neurologic protection to patients with pernicious anemia is clear, but that it actually does harm to nervous-system tissue directly appears to have been disproved. One may cite the work with brain-tissue slices by Jukes et al.,[11] the large clinical experience of Suarez[12] with sprue and the investigations by other observers, including the study by Harvey and his associates presented elsewhere in this issue of the *Journal*, in both normal and anemic persons.[13] Folic acid may even be used safely in typical cases of pernicious anemia for maintenance, provided that liver extract is also used. Under such circumstances neurologic disorders do not develop.[8]

Other, more specific uses for folic acid have come to light with the enunciation of the principle of what might be called "therapeutic dissection." The development of chemically pure therapeutic materials allows the differentiation of specific pathologic entities among a related group of diseases all responding to the same crude substance. For example, in pellagra, which is improved greatly by yeast, nicotinic acid clears up the dementia and diarrhea quickly but leaves the cheilosis, which responds to riboflavin. In the macrocytic anemias responding in greater or less degree to whole liver it is now seen that some cases respond quickly to purified liver extract or vitamin B_{12} and some respond only to folic acid. If one thinks of the deficiency macrocytic anemias as a "family" or group of diseases[14] related to pernicious anemia one can discriminate between typical pernicious anemia, as found in the temperate zones and associated with achlorhydria, and atypical pernicious anemia, occurring universally and not usually associated with achlorhydria.

It is in the latter group that folic acid has been found most effective, whereas vitamin B_{12} may be valueless. Thus, in the severe pernicious anemia of pregnancy, both liver extract and vitamin B_{12} may be quite ineffective, but responses occur quickly with folic acid.[15] In certain cases of sprue, both tropical and nontropical, folic acid is more effective clinically and therapeutically than liver extract or vitamin B_{12}.[12, 16] This may also hold true for the megaloblastic macrocytic anemia of infancy, about which divergent statements regarding therapy have been made.[17, 18] "Achrestic" anemia and the "refractory" megaloblastic anemias described by

Davidson[19] seem to respond better to folic acid. Thus, this chemical appears to have earned a definite place as a useful drug, although its exact relations, if any, to vitamin B_{12} require further elucidation.

There seems no end to the study of the pernicious-anemia problem, which has had many exciting "crises" since 1926,[20] when liver feeding was introduced for therapy. Who would have thought then that, through the discovery of vitamin B_{12} in 1948, pernicious anemia would assume universal significance by becoming the counterpart of certain abnormal growth patterns not only in chicks and rats and cattle but also in the lowly bacterium?

One is reminded in this connection of a phrase from Laplace written about one hundred and fifty years ago: "If one were able to make an exact catalogue of all particles and forces which are active in a speck of dust, the laws of the universe at large would hold no more mysteries for us!"

References

1. Stokstad, E. L. R. Isolation of nucleotide essential for growth of Lactobacillus casei. *J. Biol. Chem.* **139**:475, 1941.
2. Mitchell, H. K., Snell, E. E. and Williams, R. R. Concentration of "folic acid." *J. Am. Chem. Soc.* **63**:2284, 1941.
3. Angier, R. B., et al. Synthesis of compound identical with L. casei factor isolated from liver. *Science* **102**:227, 1945.
4. Spies, T. D., Vilter, C. F., Koch, M. B., and Caldwell, M. H. Observations on anti-anemic properties of synthetic folic acid. *South. M. J.* **38**:707-709, 1945.
5. Vilter, C. F., Spies, T. D., and Koch, M. B. Further studies on folic acid in treatment of macrocytic anemia. *South. M. J.* **38**:781-785, 1945.
6. Spies, T. D. Effect of folic acid on persons with macrocytic anemia in relapse. *J. A. M. A.* **130**:474-477, 1946.
7. Moore, C. V., Bierbaum, O. S., Welch, A. D., and Wright, L. D. Activity of synthetic Lactobacillus casei factor ("folic acid") as antipernicious anemia substance. *J. Lab. & Clin. Med.* **30**:1056-1069, 1945.
8. Meyer, L. M. Folic acid in treatment of pernicious anemia. *Blood* **2**:50-62, 1947.
9. Ross, J. F., Belding, H. W., and Paegel, B. L. Development and progression of subacute combined degeneration of spinal cord in patients with pernicious anemia treated with synthetic pteroylglutamic (folic) acid. *Blood* **3**:68-90, 1948.
10. Editorial. Warning regarding use of folic acid. *New Eng. J. Med.* **237**:713, 1947.
11. Franklin, A. L., et al. Utilization of glutamic acid in presence of high levels of pteroylglutamic acid. *Proc. Soc. Exper. Biol. & Med.* **67**: 523-527, 1948.
12. Suarez, R. M. Comments on folic acid. *New Eng. J. Med.* **238**:34, 1948.
13. McGavack, T. H., and Weissberg, J. Folic acid. *New York State J. Med.* **49**:206, 1949.
14. Editorial. "And now B_{12}." *Blood* **4**:76, 1949.
15. Day, L. A., Hall, B. E., and Pease, G. L. Macrocytic anemia of pregnancy refractory to vitamin B_{12} therapy; response to treatment with folic acid. *Proc. Staff Meet., Mayo Clin.* **24**:149-157, 1949.
16. Jones, E., Darby, W. J., and Totter, J. R. Pernicious anemia and related anemias treated with vitamin B_{12}. *Blood* **4**:827-844, 1949.
17. McPherson, A. Z., Jonsson, U., and Rundles, R. W. Vitamin B_{12} therapy in megaloblastic anemia of infancy. *J. Pediat.* **34**:529-536, 1949.
18. Luhby, A. L. Vitamin B_{12} in megaloblastic anemia of infancy. *J. Lab. & Clin. Med.* (Abstr.)
19. Davidson, L. S. P. Refractory megaloblastic anemia. *Blood* **3**:107-120, 1948.
20. Minot, G. R., and Murphy, W. P. Treatment of pernicious anemia by special diet. *J. A.M. A.* **87**:470 476, 1926.

TREND IN HOSPITAL STANDARDIZATION

The thirty-second annual hospital standardization report of the American College of Surgeons lists as approved over 80 per cent of the 3998 institutions that were surveyed in 1949. Ninety-five per cent of the hospitals of more than 100-bed capacity were approved. This is in contrast to the first annual report of the College in 1918, when only 12 per cent of 692 institutions were regarded as fulfilling the necessary requirements. This progress, the curve of which has been steadily upward, is a joint accomplishment of the College and the staffs and governing boards of the hospitals concerned. Particular credit is due the small hospitals of 25 to 50 beds, 50 per cent of which successfully passed muster. It is no mean accomplishment for a hospital of this size to meet the exacting requirements of the College.

On the other hand, no institution, large or small, should be content merely with recognition by the American College of Surgeons. The time has come when such approval must be regarded as a *sine qua non* of the existence of a hospital, not its ultimate goal. The College itself recognizes this in its point-rating system, which is an additional spur to further improvement of hospital care. But here again, as Dr. Arthur W. Allen, chairman of the Board of Regents, has pointed out, no hospital should rest on its laurels when it attains a nearly perfect score on the point-rating scale.

The care of the sick is a priceless heritage that demands the continuous and utmost effort of all who share in it. It can have no limiting standards of perfection. The ultimate goal is utopian. And all who are engaged in this work, whether doctor or nurse, dietitian or engineer, trustee or director, must realize that, for better or worse, they are in the Garden of Flowers with Alice and the Red Queen, where it takes all the running they can do to keep in the same place, and to get somewhere they must run at least twice as fast.

WHO'S WHO IN 1949

The World Health Organization, formally created as recently as mid-1948, consisted of 67 member nations as 1949 drew to its close. This represented a gain of 10 members during the year.

Now under the director-generalship of Dr. Brock Chisholm, the Organization is already able to list an impressive number of activities and accomplishments, some of which have previously been mentioned in these columns. Regional offices for field work were opened in 1949 at New Delhi, for South-East Asia; at Alexandria, for the Eastern Mediterranean, and at Washington, for the American continent. Others will be created for Europe, Africa and the Western Pacific area. In addition, field offices are maintained in China and Ethiopia and an Epidemiological Intelligence Station at Singapore, according to the Organization's Newsletter.

During the year various activities, both of a planned and an emergency nature, have been carried on in the Near East and in Denmark, in Hungary, Bulgaria, Yugoslavia and Roumania; in Italy and Czechoslovakia; in India, Pakistan and Iran; in Central and South America, and in Afghanistan, Poland, Greece and the Philippine Islands. A girdle, like that of Puck, seems to have been put around the world, if in something more than forty minutes.

Such activities have been included as the planning of mass immunization of children against communicable disease; research programs and surveys in relation to tuberculosis; the organization of international teams for venereal-disease and malaria control; the preparation of the first *International Pharmacopoeia*, which will be published in 1950; the drafting of an international mental-health program, with the Republic of the Philippines having the distinction of being the first country to ask for assistance in establishing a mental-health organization; and co-operation with the Food and Agricultural Organization of the United Nations for increasing world food production and raising nutritional standards throughout the world.

The Second World Health Assembly was held in Rome in June and July. At this time it became necessary to appeal to the frustrate Slavs of the U.S.S.R., the Ukrainian S.S.R. and Byelorussia to reconsider their determination to withdraw, for reasons of their own, from the Organization.

The Boston Female Medical School — *conducted, says the notice, by the "American Medical Education Society" — who are no doubt one and the same benevolent people, opens for a course of lectures in April — an appropriate season, particularly should labor commence the first day.*

Boston M. & S. J., *March 20, 1850*

MASSACHUSETTS MEDICAL SOCIETY

DEATHS

HUNT — Harold O. Hunt, M.D., of Falmouth, died on February 21. He was in his sixty-ninth year.

Dr. Hunt received his degree from Boston University School of Medicine in 1909. He was agent of the Falmouth Board of Health and was formerly a member of the staff of Newton General Hospital. He was a fellow of the American Medical Association.

His widow, a son, a daughter, a sister and three brothers survive.

MINOT — George P. Minot, M.D., of Brookline, died on February 25. He was in his sixty-fifth year.

Dr. Minot received his degree from Harvard Medical School in 1912. A recipient of the Nobel Prize in medicine for the development of the liver treatment of pernicious anemia, he had also received numerous awards, including the Kober Gold Medal from the Association of American Physicians, the Gold Medal of the National Institute of Social Sciences, the Moxon Medal of the Royal College of Physicians of London and the Distinguished Service Award of the American Medical Association. He was a former member of the editorial boards of the *Boston Medical and Surgical Journal* (later the *New England Journal of Medicine*), *Folia haematologica*, *American Journal of Cancer*, *Quarterly Review of Medicine*, *Blood*, *the Journal of Hematology*, and *Excerpta medica* of Amsterdam. He was professor of medicine at Harvard Medical School and a member of the staffs of Massachusetts General and Collis P. Huntington Memorial hospitals, Massachusetts Eye and Ear Infirmary, Peter Bent Brigham, Boston City, Beth Israel and New England Deaconess hospitals. He was a member of the Association of American Physicians, American College of Physicians, American Society for Clinical Investigation and American Clinical and Climatological Association and a fellow of the American Medical Association, as well as a member of numerous organizations abroad.

His widow, a son and two daughters survive.

SABINE — Jane D. K. Sabine, M.D., of Boston, died on February 28. She was in her eighty-seventh year.

Dr. Sabine received her degree from Northwestern University Medical School in 1894. She received an honorary degree of doctor of science from Smith College in 1938. She was formerly a member of the staffs of the New England Hospital for Women and Children and the Children's Hospital and a fellow of the American College of Surgeons and American Medical Association.

A brother and a granddaughter survive.

STOCHAJ — John W. Stochaj, M.D., of Webster, died on October 28. He was in his fifty-sixth year.

Dr. Stochaj received his degree from St. Louis College of Physicians and Surgeons in 1921. He was president of the staff of Webster District Hospital and was a member of the New England Obstetrical and Gynecological Society.

His widow, a daughter, two sons, two brothers and two sisters survive.

THOMPSON — Alfred P. Thompson, M.D., of Wollaston, died on February 26. He was in his seventy-ninth year.

Dr. Thompson received his degree from Boston University School of Medicine in 1897. He was a member of the staff of Quincy City Hospital.

His widow survives.

TOWNSEND — David Townsend, M.D., formerly of Brookline, died on February 1. He was in his seventy-seventh year.

Dr. Townsend received his degree from Harvard Medical School in 1901. He was a member of the American College of Chest Physicians and a fellow of the American Medical Association.

His widow, a daughter and two sisters survive.

WELLS — David W. Wells, M.D., of Newton, died on March 4. He was in his eighty-ninth year.

Dr. Wells received his degree from Boston University School of Medicine in 1897. He was professor emeritus of ophthalmology at Boston University School of Medicine and was a member of the American Academy of Ophthalmology and Oto-Laryngology and the New England Ophthalmological Society and a fellow of the American College of Surgeons.

His widow and two sons survive.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

CONSULTATION CLINICS FOR CRIPPLED CHILDREN IN MASSACHUSETTS

The April schedule for Consultation Clinics for Crippled Children in Massachusetts under the provisions of the Social Security Act follows:

ORTHOPEDIC CLINICS	DATE	CLINIC CONSULTANT
Salem	April 3	Paul W. Hugenberger
Haverhill	April 5	William T. Green
Greenfield	April 6	Charles L. Sturdevant
Gardner	April 11	Carter R. Rowe
Brockton	April 13	George W. Van Gorder
Lowell	April 14	Albert H. Brewster
Springfield	April 18	Garry deN. Hough, Jr.
Worcester	April 21	John W. O'Meara
Fall River	April 24	David S. Grice
Pittsfield	April 26	Frank A. Slowick
Hyannis	April 27	Paul L. Norton

RHEUMATIC FEVER CLINICS	DATES
Fitchburg	April 5, 12, 26
North Reading	April 4, 11, 18, 25

PLASTIC CLINICS	CONSULTANT
Eastern Massachusetts Clinics bi-monthly	Bradford Cannon
Western Massachusetts Clinics monthly	Joseph M. Baker

Physicians referring new patients to clinics should get in touch with the district health officer to make appointments. Patients are seen by appointment only.

MISCELLANY

NATIONAL SHOE FOUNDATION FOR DISABLED FEET, INC.

The National Shoe Foundation for Disabled Feet, Inc., recently announced that improved operating efficiency makes possible the handling of a larger work load. The Foundation is a nonprofit organization formed by the shoe industry to furnish special footwear for persons with crippled or deformed feet in accordance with the recommendations of their physicians. The Foundation's Central Laboratory is located at 92 Brookline Avenue, Boston. A branch laboratory is maintained at 1405 West Congress Street, Chicago, Illinois.

Those for whom the Foundation is to provide special footwear are preferably seen by appointment. A physician's prescription is required in all cases.

UNIVERSITY OF PUERTO RICO SCHOOL OF MEDICINE

The newly established University of Puerto Rico School of Medicine will open its doors next fall to an entering class of fifty students. The dean and professor of microbiology will be Dr. Donald S. Martin of Duke University Medical School.

CORRESPONDENCE

FREE MEDICAL PRACTICE

To the Editor: As a family physician I thoroughly appreciate the sympathy expressed by Dr. Allan M. Butler in his letter entitled "The Family Doctor and Blue Shield," which appeared in the March 2 issue of the *Journal*, but I have to state, that Blue Shield treats us family doctors well. Whether we set a bone or open an abscess in the hospital or the home, we get paid. Other "insurance plans," like the Omaha Plan and the Mutual Benefit Plan of the General Electric Company, are much more discriminating against office or medical practice.

The real threat to honest medicine today looms in other quarters. Industry has its own doctors, and, more often than not, the company doctor creates distrust, dispenses free advice and free pills and thus causes the patient to lose confidence in the family doctor. The following examples illustrate this point.

A young man, exposed to powder-fumes for a considerable time, came to my office because of a chronic "stuffy nose" (he had no fever and no lymph-node swelling). Examination of the nasal secretion showed innumerable epithelial cells, loaded with black particles, so that I recommended a change of job conditions. The company doctor ordered a blood count, found a number (42 per cent) of large lymphocytes and told the patient there was nothing wrong with his nose, but that he had infectious mononucleosis.

Last Sunday I was called urgently to an elderly man, who had been seized by pressure over the sternum and pain running down the left arm. The patient was a heavy smoker and a heavy eater and had had a head cold with spasmodic cough for a considerable time. An electrocardiogram taken at the bedside showed strain of the left side of the heart, of mixed type. The patient was given an explanation, sedative medication and instructions. Of course, he could not pay for his electrocardiogram, and he was told that he could pay later on. On Monday I received a call from the patient's wife: they were *so* sorry, but the company insisted, that *such* cases were to be seen by its own doctor, so that, unless the company doctor permitted it, I should not expect to see the patient again.

Do we have *free* medicine?

GEORGE VASH, M.D.
458 Grattan Street
Aldenville–Chicopee, Massachusetts

TEST FOR PENTOSURIA

To the Editor: In connection with Dr. W. Richard Ohler's interesting review of basic considerations in diabetes mellitus, which appeared in the February 16 issue of the *Journal*, some readers may be interested to learn of a test for pentosuria that is so simple that it may profitably be carried out to complete the identification of a newly found reducing substance in urine.

The only reagents required are Clinitest tablets and 3 per cent hydrogen peroxide. Given a urine that has been found to contain a reducing substance, the following procedure is carried out: 5 drops of urine are placed in a test tube; 1 drop of fresh 3 per cent hydrogen peroxide is added, and this is mixed and allowed to stand for five minutes; 9 drops of water and 1 Clinitest tablet are added. If a urine that previously gave a positive reaction for a reducing substance gives a negative reaction on this test or is much more weakly

positive than formerly, the urine contains l-xylulose (l-xyloketose), the common and perhaps only pentose found in pentosuria.

The basic principle of this test is a disproportionately marked sensitivity of l-xylulose to dilute peroxide oxidation described by Morris Enklewitz (*J. Biol. Chem.* **116:** 47, 1936). Dr. Clarence Cohn and I have compared the results obtained by the use of this test with those obtained with the Bial reaction in a series of patients with pentosuria and in glycosuria. No false-positive or false-negative reactions have been observed.

WILLIAM QUITMAN WOLFSON, M.D.
Assistant Director
Department of Biochemistry
Michael Reese Hospital
Chicago, Illinois

BOOKS RECEIVED

The receipt of the following books is acknowledged, and this listing must be regarded as a sufficient return for the courtesy of the sender. Books that appear to be of particular interest will be reviewed as space permits. Additional information in regard to all listed books will be gladly furnished on request.

The Miracle Drugs. By Boris Sokoloff, M.D., Ph.D., director of research, Florida Southern College. 8°, cloth, 308 pp., with illustrations. Chicago: Ziff-Davis Publishing Company, 1949. $3.00.

Dr. Sokoloff, a specialist in cancer research, has written a large number of popular medical books, and this volume deals with the history of the antibiotics. The early chapters are devoted to the sulfonamides, followed by chapters on penicillin, streptomycin, actinomycin and the other therapeutic agents derived from molds. The text is concluded with a long bibliography and a good index. The material is well organized, and the text well written. The volume is well published in every way. The type is large, legible and well printed on a good lightweight paper. The book should be in all medical-history collections and is suitable for public libraries.

Physiology in Health and Disease. By Carl J. Wiggers, M.D., D. Sc., professor of physiology and director of Physiology Department in the School of Medicine of Western Reserve University, Cleveland. Fifth edition. 8°, cloth, 1242 pp., with 280 illustrations. Philadelphia: Lea and Febiger, 1949. $10.00.

This standard reference work, first published in 1934, has been completely revised and brought up to date, approximately a third of the text having been rewritten to form a complete new book. More than a thousand references and sixty illustrations have been added. New material includes bioelectric currents, oxidation, muscle contraction, impulse transmission, hemodynamics, blood flow through the kidney, liver, spleen, heart and lungs, physiologic optics, hearing, physical processes concerned in secretion, absorption and translocation of fluids and electrolytes, and the dynamics of urinary secretion. Subjects of daily interest have been revised, including pain, headache, paralysis, spasticity, coagulation and coagulants, blood volume, dyspnea, coronary occlusion, dynamics of valvular lesions, edema, pulmonary edema and embolism, gastroduodenal ulcer, diabetes, fever, bed rest, conditioned reflexes and experimental neuroses. A new chapter is devoted to a discussion of the physiologic basis of psychosomatic reactions. For the present, problems concerning war physiology have been retained. This well known work is recommended for all medical libraries.

The Epitome of Andreas Vesalius. Translated from the Latin, with preface and introduction by L. R. Lind, Ph.D., University of Kansas. With anatomic notes by C. W. Asling, M.D., Ph.D., University of California, and a foreword by the late Logan Clendening, M.D. 4°, cloth, 103 pp. New York: Macmillan Company, 1949. $7.50. Publication No. 21, Historical Library, Yale Medical Library.

The epitome of Vesalius, in either the Latin, German or Dutch editions, is a rare book. This English translation, with a reduced facsimile reproduction of the folio edition of 1543, constitutes a valuable addition to the history of anatomy and medical history in general. Explanatory notes are appended to each chapter. A bibliography of the principal editions of Vesalius precedes the text of the translation. This beautiful book is excellently published and should be in all medical libraries and medical-history collections.

Pollen-Slide Studies. By Grafton T. Brown, M.D., instructor in clinical medicine, Georgetown University School of Medicine, consultant in allergy, United States Public Health Service, and head, Division of Allergy, Doctors Hospital, Washington, D. C. With a foreword by Wallace M. Yater, M.D., M.S. (in medicine), director, Yater Clinic, and civilian consultant, Army Institute of Pathology and Walter Reed General Hospital. 8°, cloth, 122 pp., with 98 illustrations. Springfield, Illinois: Charles C Thomas, 1949. $6.00.

This monograph constitutes an atlas of ninety-five illustrations of pollen grains and larger fungus spores. The figures are taken from photomicrographs or are drawings especially made for the book. The atlas proper is preceded by twenty pages of District of Columbia pollen counts made in 1938 and 1941, two bad hay-fever years in Washington. The author states that the manual, if properly used, will enable any allergist or technician to identify and count the important pollen grains and larger fungus spores that are present in the air in sufficient numbers to be breathed in with normal respiration. No previous botanical knowledge is necessary because of the clear descriptions accompanying the figures.

Injuries of the Brain and Spinal Cord and their Coverings: Neuro-psychiatric, surgical, and medico-legal aspects. Edited by Samuel Brock, M.D., New York University. Third edition. 8°, cloth, 783 pp., with 125 illustrations. Baltimore: Williams and Wilkins Company, 1949. $10.00.

This composite work, the joint effort of twenty-eight physicians, has been revised and brought up to date since the publication of the last edition in 1943. A new chapter has been added on herniation and protrusion of intervertebral-disk tissue. New authors have contributed chapters on injuries of the vertebral column and spinal cord, on neuroses following head and brain injuries and on the effects of electric shock on the nervous system. The bibliographies have been brought up to date, and there is a good index. This standard reference book should be in all medical libraries and in the private libraries of surgeons interested in neurosurgery.

NOTICES

ANNOUNCEMENT

Dr. Randolph K. Byers announces that Dr. Kenneth F. Sands has joined him in the practice of pediatrics at 319 Longwood Avenue, Boston.

BOSTON CITY HOSPITAL HOUSE OFFICERS' ASSOCIATION

Dr. Harry Gold, professor of clinical pharmacology, Cornell University Medical College, will present a paper entitled "Management of Congestive Heart Failure" in the Dowling Amphitheater of the Boston City Hospital on Tuesday, March 28, at 7 p.m.

Dr. Burrill Crohn, of the Mt. Sinai Hospital, New York City, will present a paper entitled "Regional Ileitis" in the Dowling Amphitheater on Tuesday, April 4, at 7 p.m.

All interested persons are invited to attend.

94TH INFANTRY DIVISION LECTURE

The twelfth lecture in the series sponsored by the 94th (Bay State) Division will be held in the amphitheater of the Evans Memorial, Massachusetts Memorial Hospitals, 750 Harrison Avenue, Boston, on Thursday, March 30, at 8 p.m.

Dr. Emmanuel Deutsch, instructor in medicine, Tufts College Medical School, and physician-in-charge, Department of Gastric Enterology, Boston Dispensary, will speak on the subject "Gastric Carcinoma and Gastric Ulcer."

All interested physicians, whether reserve officers or not, are cordially invited to attend this carefully planned program. Reserve officers will be given one point credit if authorized by instructor of their unit of assignment. Excellent films will be shown during this period.

NEW ENGLAND CARDIOVASCULAR SOCIETY

A meeting of the New England Cardiovascular Society will be presented by the Children's Medical Center (the House of the Good Samaritan and the Children's Hospital) in Amphitheater B, Harvard Medical School, on Monday, April 3, at 8 p.m., Dr. Benedict F. Massell presiding.

PROGRAM

The Unipolar Precordial Electrocardiogram in Normal Infants and Children. Drs. Mariano M. Alimurung, Lester G. Joseph, Benedict F. Massell and Alexander S. Nadas.

Atrial-Pressure Regulation in the Presence of a Common Atrial Chamber. Drs. James Dow and Lewis Dexter.

Sodium and Potassium Balance in Rheumatic Carditis Treated with ACTH. Drs. Joseph E. Warren, Hirsh Sulkowitch and Benedict F. Massell.

Forty Cases with Vascular Abnormalities and Compression of the Trachea or Esophagus. Dr. Robert Gross.

Cardiac Complications of Friedreich's Ataxia. Drs. Alexander S. Nadas and Mariano M. Alimurung.

Prevention of Rheumatic Fever by Prompt Penicillin Therapy of Hemolytic Streptococcal Respiratory Infections. Drs. Benedict F. Massell, George P. Sturgis, Richard B. Streeper, Joseph D. Knobloch and Pliny Norcross.

A Rapid Bedside Method for the Determination of Urinary Sodium Content. Dr. Hirsh Sulkowitch. (If time permits.)

Interested physicians and medical students are cordially invited to attend.

NEW ENGLAND HOSPITAL FOR WOMEN AND CHILDREN

The monthly clinical conference and meeting of the staff of the New England Hospital for Women and Children will be held in the conference room of the hospital on Thursday, April 6, at 7:15 p.m. Dr. Lawrence Pickett will speak on the subject "Surgical Treatment of Congenital Heart Disease." Dr. Mary Perry will be chairman.

TUFTS MEDICAL ALUMNI ASSOCIATION

The annual dinner meeting of the Tufts Medical Alumni Association will be held at the Somerset Hotel, Boston, on Wednesday evening, April 19, 1950.

The guest speaker is to be Chester I. Barnard, D.Sc., LL.D., president of the Rockefeller Foundation and General Education Board, who will speak on the subject "The Work of the Rockefeller Foundation." President Leonard Carmichael of Tufts College will speak on the subject "Looking Toward the Future." Other talks will be given by Dean Dwight O'Hara and Dr. Harold Little, pathologist, Wheeling, West Virginia, who will represent the twenty-five-year class, which will also hold its reunion on this date. Dr. Frank R. Ober will preside.

Preceding the dinner there will be open house at the new Tufts College Medical School from 1 to 4 p.m. Dean O'Hara has arranged to have student guides for the afternoon.

SPRINGFIELD HOSPITAL

The following is the educational program of the Springfield Hospital for the next month:

Saturday, April 1. 12:00 m. Combined Urological-Pathological Conference on the subject "Pathology of the Lower Nephron" in the Staff Conference Room.

Saturday, April 15, 11:00 a.m. Guest Speaker Conference in the Staff Conference Room. Dr. William Edward Browne, clinical professor of surgery, Tufts College Medical School, will speak on the subject "The Diagnosis of Injuries of the Hand and an Outline of First Treatment Necessary," with lantern slides.

Tuesday, April 18. 8:30 p.m. Clinicopathological conference in the Staff Conference Room.

NATIONAL REHABILITATION ASSOCIATION

The annual regional conference of the National Rehabilitation Association will be held at the Narragansett Hotel, Providence, Rhode Island, on April 21. The morning session, which will begin at 10, will consider three topics: "Rehabilitation of the Blind"; "The Significance of Emotional Components in Disability"; and "Problem of the Homebound." After luncheon the program will consist of two panel discussions: "After Rehabilitation, Then What?" and "The Connecticut Rehabilitation Plan."

NATIONAL RESEARCH COUNCIL COMMITTEE ON HUMAN REPRODUCTION

The Committee on Human Reproduction of the National Research Council will hold its annual two-day conference on some phase of reproduction at the Hotel Commodore, New York City, on May 22 and 23. The subject for this year will be testis and ovary, eggs and sperm.

Among the speakers will be David W. Bishop, University of Massachusetts; L. C. Dunn, Herbert Elftman and Earl T. Engle, Columbia University; Helen Deane, Harvard Medical School; Henry A. Lardy, University of Wisconsin; John McLeod, Cornell University Medical College; Warren O. Nelson, University of Iowa; Jack Schultz, Cancer Research Institute, Philadelphia; and George D. Snell, Jackson Memorial Laboratory, Bar Harbor.

PROFESSIONAL ILLUSTRATORS AND PHOTOGRAPHERS

The Academy-International of Medicine is establishing an information service on professionally trained medical illustrators and photographers who will assist physicians in the preparation of all types of papers for publication, meetings, visual demonstrations and exhibit material. Information on illustrators and photographers is to be available, upon request, to the entire medical profession.

All doctors having personal knowledge of competent illustrators or photographers are requested to assist by sending the technicians' names and addresses to Academy-International of Medicine, 214 West Sixth Street, Topeka, Kansas.

SOCIETY MEETINGS AND CONFERENCES

OCTOBER 3–MAY 19. Massachusetts Department of Mental Health. Postgraduate Seminar in Neurology and Psychiatry. Page 286, issue of August 18.

JANUARY 9–DECEMBER 1. Laboratory Courses at Communicable Disease Center, Atlanta, Georgia. Page 950, issue of December 8.

MARCH 4–29. Springfield Hospital Educational Program. Page 347, issue of March 2.

MARCH 28. Boston City Hospital House Officers' Association. Page 487.

MARCH 29. Beth Israel Hospital Lecture. Page 270, issue of February 16.

MARCH 30. Buffalo Surgical Society (see Roswell Park Award). Page 428, issue of March 16.

MARCH 30. 94th Infantry Division Lecture. Page 487.

APRIL 1. Springfield Hospital. Notice above.

APRIL 3. New England Cardiovascular Society. Notice above.

APRIL 3. Hartford Medical Society. Page 386, issue of March 9.

APRIL 3 AND 4. American College of Surgeons. Page 427, issue of March 16.

APRIL 4. Boston City Hospital House Officers' Association. Page 487.

APRIL 6. New England Hospital for Women and Children. Notice above.

APRIL 7. Public Seminar in Chemotherapy. Page 270, issue of February 16.

APRIL 10 AND 11. American College of Surgeons. Page 427, issue of March 16.

APRIL 13. The Value of the Bone Bank. Dr. Joseph H. Shortell. Pentucket Association of Physicians. 8:30 p.m. Haverhill.

APRIL 15. Springfield Hospital. Notice above.

APRIL 17. Boston Lying-in Hospital Obstetric Round Table. Page 888, issue of December 1.

APRIL 17. Hartford Medical Society. Page 386, issue of March 9.

APRIL 18. Springfield Hospital. Notice above.

APRIL 19. Tufts Medical Alumni Association. Notice above.

APRIL 21. National Rehabilitation Association. Notice above.

APRIL 21. Sixtieth Anniversary of Clark University. Page 428, issue of March 16.

APRIL 22–29. American Association of Industrial Physicians and Surgeons. Page 305, issue of February 23.

APRIL 24–28. National Tuberculosis Association. Page 678, issue of October 27.

(*Notices concluded on page xi*)